The Journal
OF THE KANSAS MEDICAL SOCIETY

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November, 1952 Vol. LIII, No. 11

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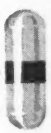

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Entered as second-class matter, May 2, 1914, at the Postoffice at Topeka, Kansas, under the Act of March 3, 1879. Accepted for mailing at special rate of postage provided for in Section 1103, October 3, 1917. Authorized on July 2, 1918.

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Ownership: The Journal is a non-profit publication owned and published monthly by the Kansas Medical Society.

Subscription: Membership in the Kansas Medical Society includes subscription to The Journal. Rates to others, except in foreign countries, are $4.00 per year or 60c per copy.

Material: Scientific articles, editorials, and data of general interest are invited from all members. Articles are to be submitted on condition that they are contributed solely to this publication. A right is reserved to reject any material deemed unsatisfactory.

Manuscripts: Only manuscripts that are typewritten on one side, double spaced, and original copies can be accepted. Manuscripts will be returned upon request.

Advertising: All advertising contracts, and all copy from advertisers under contract are subject to approval of the editorial board. Copy should be received by the 20th of the month immediately preceding the month of publication.

Non-Responsibility: Although an effort is made to publish only accurate articles and legitimate advertisements the Journal denies legal responsibility for any statements, opinions, or advertisements appearing under the names of contributors or concerns.

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Among the nutritional needs of patients with chronic ulcerative colitis is protein.[4] For such patients a recommended diet includes 4 ounces of tender meat with luncheon and with dinner.[5a]

In diabetes mellitus, maintenance of protein reserves is important for supporting well-being and vigor, for maintaining resistance to infection, and, in conjunction with good general management, for minimizing many of the degenerative changes commonly seen in this condition.[6,7] One ounce of bacon at breakfast and 2½ ounces of cooked meat at each of the other two meals are valuable in a diabetic diet.[5b]

A program of treatment[8] found useful in atherosclerosis of the coronary vessels includes an adequate diet low in fat (20-25 Gm. daily) and normal or moderately high in protein (60-100 Gm. daily), in conjunction with lipotropic agents. A sample menu of this diet lists 2 ounces of lean meat at both the noon and evening meals.

Underweight or average weight patients with persistent low blood sugar levels are benefited by a high protein diet providing meat two or three times a day.[9] In overweight patients of this type, lean meat is served at luncheon and at dinner.

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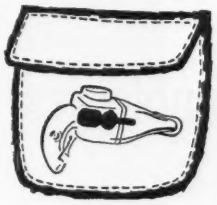

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1. Kaufman, R., and Farmer, L. (1951), Norisodrine by Aerohalor in Asthma, Ann. Allergy, 9:89, January-February.
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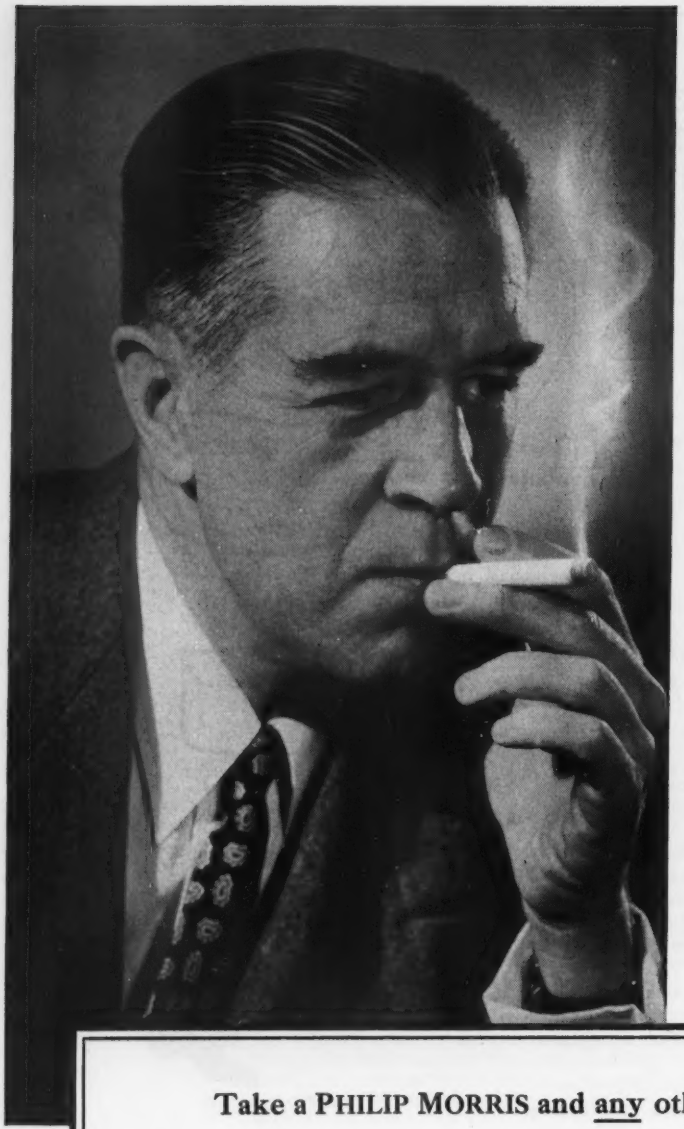

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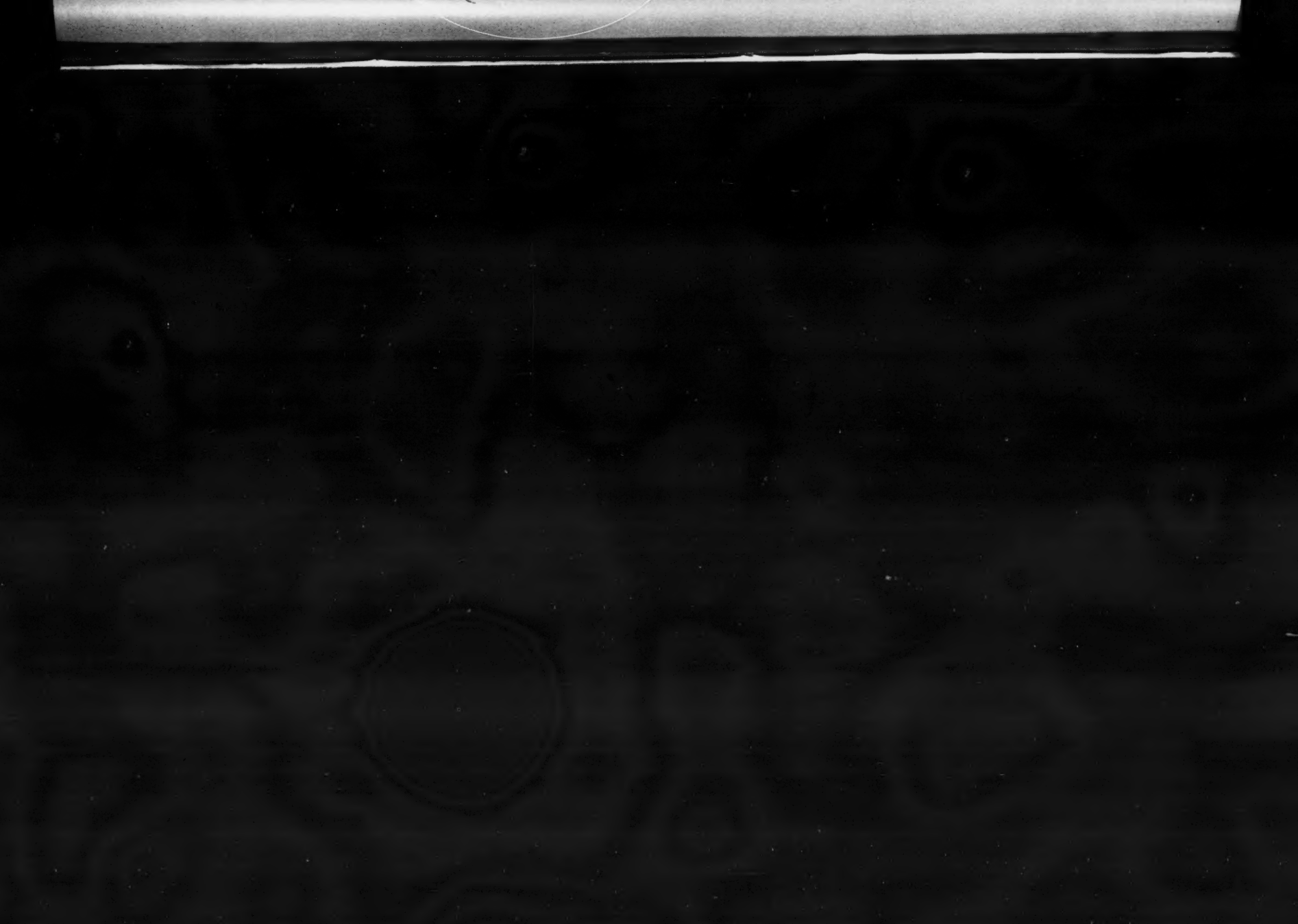

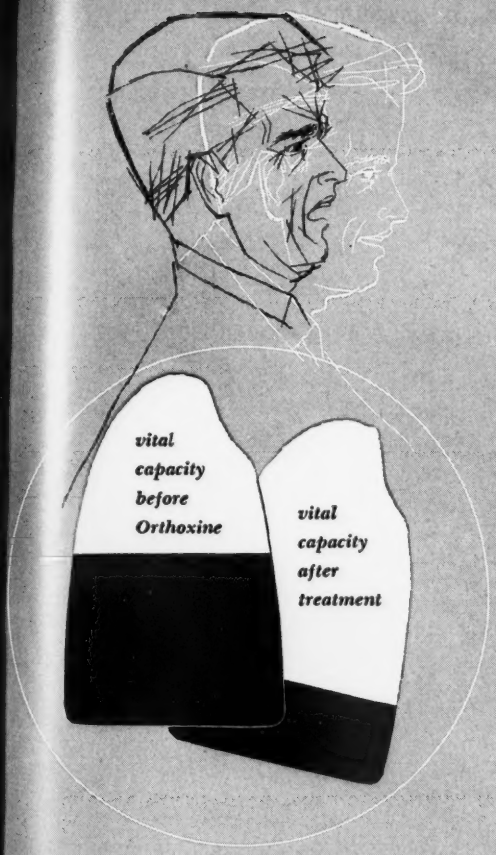

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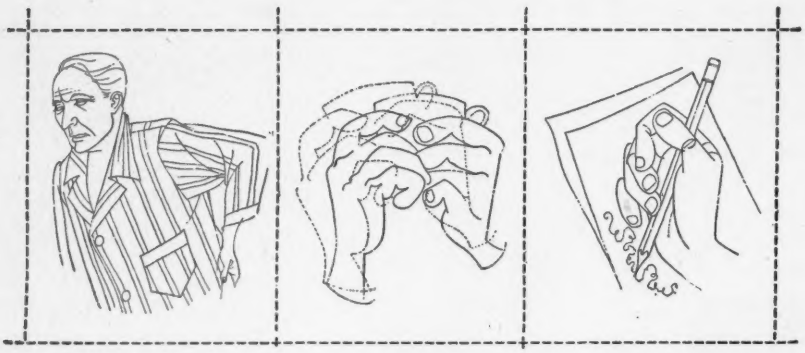

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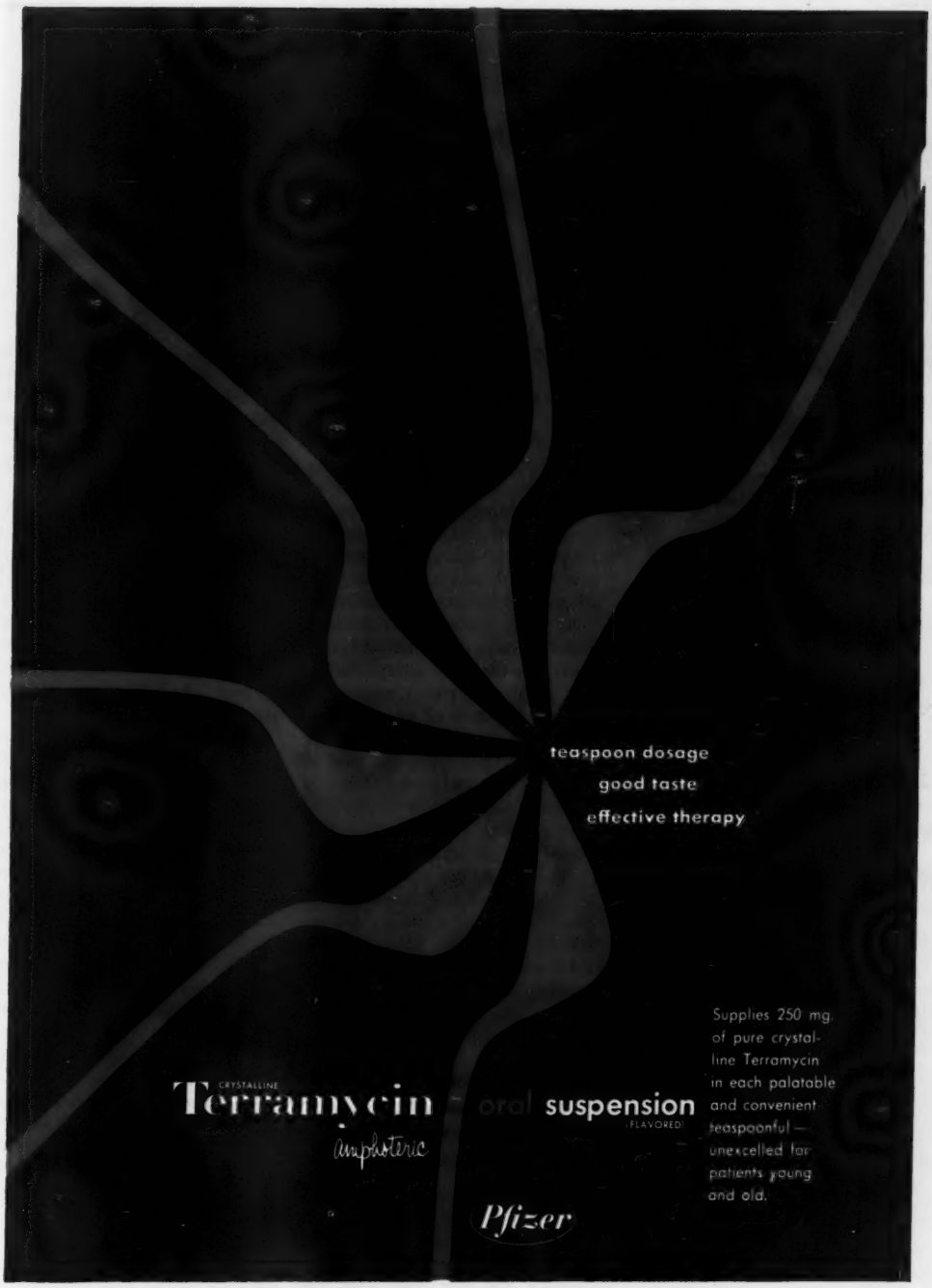

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McHardy, G. G. et al, Clinical Evaluation of Methantheline (Banthine) Bromide in Gastroenterology, J.A.M.A. Vol. 147, no. 17, Dec. 22, 1951, pp. 162 ff.

Pathologically Speaking

VALUE OF GASTRIC ANALYSIS

IN PATIENTS presenting vague complaints of belching, gaseousness, epigastric discomfort before or after meals, obscure anemias or weight loss, or in patients presenting more definite symptoms such as actual epigastric pain especially when hungry or during the night, diarrhea, or constipation, the analysis of gastric volume and acidity may be of great diagnostic assistance.

It is a somewhat confusing fact that most of the above symptoms (with the exception of true epigastric pain) may occur in the presence of either insufficient or excess acidity and/or volume of gastric juice, and it becomes immediately apparent that one cannot hope to institute the proper therapy until the *status quo* is first determined.

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Should one obtain a fasting specimen of over 100 cc., pyloric obstruction due to ulcer or carcinoma of the stomach or due to extrinsic pressure must be searched for diligently. Should a volume of less than 20 cc. be obtained, one must suspect pernicious anemia, chronic alcoholism, leather-bottle stomach, chronic gastritis, or extrinsic pressure.

As to acidity, one must remember that approximately 10% of all adults and as many as 30% of adults over 70 years of age show achlorhydria *in the absence of disease.* But one must always rule out pernicious anemia, gastric carcinoma, chronic gastritis, and pellagra if achlorhydria be present, especially if it persist after alcohol or histamine stimulation.

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Volume LIII NOVEMBER, 1952 Number 11

Giant Intracanalicular Fibro-Adenoma

John G. Shellito, M.D., and Wayne C. Bartlett, M.D.*
Wichita, Kansas

Chelius[1] first described a breast tumor, which he called a cystic hydatid. Johannes Müller[5] in 1838 described the tumor in more detail under the name of cystosarcoma phylloides. Since that time many different names have been used to designate the tumor called giant intracanalicular fibromyxoma by Lee and Pack[4] in October, 1931. Lee and Pack[4] collected 105 cases and added four of their own. In 1941, Owens and Adams[6] reviewed the literature and added a case of their own. The total number of reported cases then reached 122. Reed and Hiebert[7] reported a case of bilateral giant fibro-adenomata associated with pregnancy, in 1942. In December of 1950, Horton and Baker[3] added one other case to the literature. This brought the total reported cases to 127.

Giant fibro-adenoma of the breast still remains a rare lesion. In the gross this lesion is often confused with a far advanced cancer.

Pathology

According to Lee and Pack,[4] these giant lesions arise from a pre-existing small fibro-adenoma. The average age for most women with this lesion is in the forties.

The breast is usually found to be enlarged by a nodular, encapsulated tumor mass, which does not involve the nipple or the axillary nodes. Some areas of the tumor mass are usually found to be cystic.

Histologically myxomatous degeneration is often seen. In the benign types the main element is fibrous and no mitoses are in evidence. The ducts and the glands appear tortuous and bizarre.

The malignant lesions show areas which are obviously benign, intermingled with those showing malignant change. There is increased cellularity, loss of fibrous tissue preponderance, and evidence of mitotic figures (Figure 1). In 1943, Cooper and Ackerman[2] adequately reported a malignant sarcomatous change in a giant intracanalicular fibro-adenoma.

Case Report

Mrs. R. G., a 45-year-old white female, presented herself at the Wichita Clinic complaining of a breast lesion. In 1938, three years following the birth of a baby, which she nursed, she noted a tumor in the left breast. This tumor was biopsied elsewhere and reported as benign. The lesion remained the same size until June of 1951, when a sudden increase in growth was noted. Associated with the

Figure 1. Increased cellularity.

*Both authors on the staff of the Wichita Clinic.

increase in size, there was a rather profuse bloody discharge from the nipple. The skin over the lesion became taut and the breast as a whole felt much harder than before. There was no appreciable weight loss.

A large hard tumor which occupied at least two-thirds of the breast area was found on physical examination. Pressure upon the lesion itself would produce a bloody discharge from the nipple.

A simple left mastectomy was done on December 5, 1951. Frozen section was reported as malignant in some areas of the tumor. The simple mastectomy was then immediately followed by a radical operation. Further examinations of fixed sections later revealed sarcomatous change in a grossly benign giant follicular intracanalicular fibro-adenoma. The patient made an uneventful recovery and at the present time is living and well.

Discussion

This tumor is, in general, considered a benign lesion. Because of the cellularity, some pathologists tend to list many of these tumors as sarcomas. The medical and surgical literature is much confused with a variety of names. Of the entire list, giant intracanalicular fibro-adenoma and cystosarcoma phylloides seem to have stood the test of time.

The majority of these lesions have been reported prior to the advent of frozen section diagnosis, and before the dictum of breast biopsy became established. With modern methods of treatment this lesion should gradually become extinct.

These lesions are noted for their large size. Their relative benignity is exemplified by the lack of involvement of axillary nodes. These tumors are usually well encapsulated in the gross and are movable upon examination. Previous discussions in the literature have mentioned a sudden increase in growth engrafted upon what was a small intraductal fibro-adenoma. It is thought that the hormones associated with pregnancy have a definite relationship to this growth stimulus.

Under the microscope, distorted cystic spaces between polypoid growths are seen. If increased cellularity and mitotic figures are evident, the lesion must be considered malignant (Figure 2). The differentiation between pseudo-sarcoma and true malignancy is often a difficult one.

In spite of the widespread opinion that these tumors are in the main benign, a careful search by the pathologist will often reveal true areas of malignancy.

Conclusion

1. The historical aspects of giant follicular intraductal fibro-adenoma are reviewed.

2. Attention is called to the confused nomenclature in the literature.

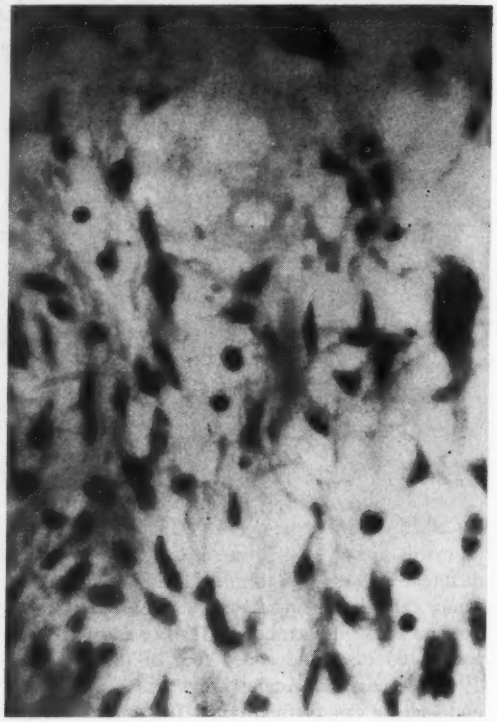

Figure 2. Mitotic figures and loss of fibrous tissue stoma preponderance.

3. The physical aspects of the lesion are discussed.

(a) Sudden increase in size of the previously noted small lesion.

(b) Encapsulation of the tumor in the gross, and the usual absence of axillary nodes.

(c) Association of pregnancy and the hormonal stimulus to growth, as mentioned in the literature.

4. These tumors must not all be considered benign lesions. A true malignant change is occasionally encountered.

5. The pathological differentiation between a benign lesion and a malignant lesion is often difficult.

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The Role of Allergy in Infectious Diarrhea of Infancy*

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No disease of infancy has given way more steadily before advances in sanitation and food handling than "summer complaint." In spite of this, infectious diarrhea remains a serious threat to infants, even to those in the best environments. That this is so is largely because of the mystery and confusion that surround the problem of etiology.

Anyone who investigates the subject will agree that "the literature on diarrheal diseases has become notable for the variability in findings and conclusions."[4] The rarity of positive stool cultures has led to the general assumption that viruses are a leading cause; their role in some outbreaks has been demonstrated.[3] Two things suggest that the viruses of respiratory disease may be common offenders: (a) the common presence of a "cold" or red throat, and (b) the seasonal incidence. In Kansas City, Kansas, a three-year study of admissions to three private hospitals shows that the highest peaks occurred in winter. Like upper respiratory disease, infectious diarrhea can occur at any time, but it is apparent that as a disease severe enough to require hospitalization, at least, it is tending to become a winter problem (Figure 1).

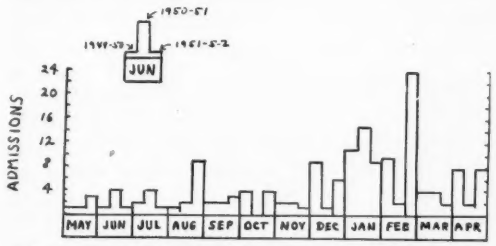

Figure 1. Admissions for infectious diarrhea in infants below two years, Bethany, Providence, and St. Margaret's Hospitals, Kansas City, Kansas, from May 1, 1949, to May 1, 1952.

It will be assumed as a working hypothesis that present-day infectious diarrhea of infancy is largely caused by these mysterious agents of respiratory disease and that the bowel is ordinarily not susceptible to them. The purpose of this communication is to suggest that loss of this natural resistance is commonly due to food allergy and to propose that the allergic factor be evaluated in infectious diarrhea of young children.

Allergy and Infection

That allergy increases susceptibility to infection is axiomatic. In the respiratory tract, for example, frequency or chronicity of infection turns the physician's suspicions to allergy. A similar susceptibility prevails in atopic eczema, where the skin is likely to be invaded by organisms to which in health it would be quite resistant. There is good precedent, then, for proposing allergy as a predisposing factor in infectious diarrhea.

It is not within the scope of this paper to discuss allergic diarrhea. Diarrhea due directly and solely to food allergy almost always begins in early infancy when the baby first encounters the offending food. Although usually mild, these cases may occasionally be severe; a case of this type was discussed recently by Darrow.[2] Two cases of allergic diarrhea were hospitalized during this outbreak, but are not included in this paper.

Clinical Material

This is a report based on experiences during an epidemic of the first four months of 1952. Nineteen infants with fever, diarrhea, and (usually) vomiting were hospitalized from the writer's office. All were free of allergic manifestations at time of onset. There is nothing remarkable in the course; they were admitted early and recovered with orthodox treatment. Two factors only, the feeding history and the family history, will be elaborated on.

Feeding History. Gastrointestinal allergy in infants usually manifests itself in the form of abdominal pain (colic), vomiting or diarrhea.[5] Of the 19 cases presented, 14 had had one or more of these in a marked degree. In each case, controlling food intolerance had involved specific food avoidance, cow's milk being by far the worst offender. The five who had no such history are interesting. One was highly susceptible to colds and developed asthma shortly after the diarrhea episode; this was traced to milk. Two others were breast fed, one for nine months, the other for 12. Another had a severe congenital heart lesion, probably an interauricular septal defect, and had had congenital hypertrophic pyloric stenosis relieved by pyloromyotomy. The fifth was a normal bottle baby, the only normal bottle baby of the 19.

Family History. In the immediate families of the parents there was a high incidence of two conditions commonly associated with food allergy: asthma and migraine. In one infant (R.S.) there

*From the pediatric services of Bethany, Providence, and St. Margaret's Hospitals, Kansas City, Kansas.

TABLE I

Summary of 19 cases of infectious diarrhea of infancy

	Sex	Age (mon)	Family History	Feeding History
1. M.F.	M	7	Migraine	Colic
2. R.S.	M	10	Migraine, asthma	Colic
3. R.B.	F	16	Migraine, asthma	Colic
4. L.M.	F	20	Migraine, asthma	Colic
5. R.E.	F	14	Migraine	Colic
6. R.C.	M	11	Migraine	Colic, diarrhea
7. F.S.	M	10	Asthma, hay fever	Colic, diarrhea
8. S.M.	M	8	Migraine	Colic, diarrhea
9. D.B.	F	9	Migraine	Colic, diarrhea
10. T.C.	M	11	Hay fever	Colic, diarrhea
11. K.M.	F	7	Migraine, hay fever	Diarrhea, vomiting
12. M.Z.	M	15	Asthma	Diarrhea, vomiting
13. D.V.	M	12	Asthma, hay fever	Vomiting (formula) Neg. on breast
14. L.F.	F	10	Hay fever	Vomiting
15. E.A.	M	15	Migraine	Neg.
16. M.D	F	15	Migraine	Neg.
17. A.M.	F	22	Asthma	Neg. (asthma)
18. J.B.	M	8	Neg.	Neg. (cong. heart)
19. J.H.	M	23	Neg.	Neg.

was a history of sibling death from diarrhea. This is a family with widespread allergy. An almost identical history was obtained in a case seen in 1951.

Feeding and family histories are summarized in Table I.

Implications

Prevention. If the concept developed here is valid, the physician may well be less in a hurry to return "feeding problems" to a general diet. Table I shows that incidence in this outbreak was low before the ninth month. The role of maternal antibodies is apparently as important here as in many other childhood diseases. It would certainly seem impractical to keep all children with bad feeding histories on a restricted diet well into the second year. Probably the best answer is to advise minimal amounts (16 ounces in the case of milk, for example) with complete avoidance with the onset of upper respiratory infection.

Treatment. Whatever the merits of early versus delayed oral feeding,[1] or whatever the physician's feeling about feeding problems as allergies, it seems wise to protect the sick bowel from foods which it did not tolerate in health. It is the work of a moment to get a newborn history of colic, vomiting, or diarrhea. It is a history hardly to be forgotten by the parents.

These cases were started on carbonated beverages and tea with sucrose as soon as vomiting stopped. Gelatine was begun a few hours later. In the absence of a contraindicating history, oatmeal and rice cereals were begun within 12 or 18 hours. Milk was regarded with utmost suspicion. In more severe cases or in those with especially bad milk histories —the two practically coincided—milk was withheld until well after the child returned home. Mullsoy and Nutramigen were found excellent milk substitutes.

Summary

Feeding histories and family histories were reviewed in 19 cases of infectious diarrhea of infancy occurring during a severe four-month outbreak. In 14 of these there was a strong feeding history of intolerance to cow's milk or other specific foods as manifested in colic, diarrhea, or vomiting. In 17 there was a family history of asthma, migraine, or hay fever.

These findings are presented as evidence that allergy to foods is a significant predisposing factor in the etiology of infectious diarrhea of infancy.

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Treatment of Hypertension

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The problem of hypertension and its management is as old as the history of medicine itself. Even before the blood pressure of man had been measured, the large, heavy heart of the hypertensive person had already been observed and described. Early in the 19th century, Richard Bright, without the benefit of studies on the arterial pressure, concluded that there was a direct relationship between renal disease and these large, heavy hearts. He did recognize the probable existence of increased resistance to the flow of blood through the peripheral blood vessels and even concluded that renal disease was responsible for some chemical in the blood which produced cardiac hypertrophy. However, he felt that the mechanism involved a direct effect on the cardiac muscle. Even today our speculations on the precise mechanism of the relationship between hypertension, vascular disease, and renal vascular disease have not advanced remarkably beyond the conclusions of Richard Bright.

The vascular crisis of hypertension is a medical emergency. It is a syndrome consisting of a group of alarming and potentially lethal symptoms that occurs not uncommonly in patients with any of the various types of hypertension, regardless of their etiology. These symptoms are due to an increase in blood pressure, usually sudden, to levels substantially higher than those ordinarily present. The prodromata are likely to include mental confusion, headache, twitching and particularly left ventricular heart failure. As the pressure rises further, the condition may produce coma, convulsions, transient hemiplegia and other cerebral symptoms, as well as acute congestive failure—or the symptoms of a pre-existing failure may become decidedly more pronounced.

In the past the usual therapeutic procedures that have been employed for the attempted treatment of the vascular crisis of hypertension have been remarkably ineffective. With recent advances in the standardization and purification of Veratrum, there has been hope that it might prove useful in this condition. Such, indeed, has proved to be the case.

Historically, Veratrum, or hellebore, seems first to have appeared in medicine during the time of Hippocrates as the "universal emetic." This was the European or white helebore *(veratrum album)* which is virtually identical in its actions and composition with the American or green hellebore *(Veratrum viride)*.[1] The earliest use of *Veratrum viride* in America is said to have been in connection with the selection of Indian chiefs—"that individual whose stomach was least susceptible to its deleterious effects was regarded as the strongest of the party, and entitled to command the rest."[2] In 1870, Wood concluded that the alkaloids of Veratrum viride act as a "direct arterial sedative to man;"[3] yet it was generally believed until 1946 that the reduction in blood pressure following administration of Veratrum viride was the result of a toxic depression of the myocardium. In that year Krayer and Acheson[4] described a significant reduction in arterial pressure produced by Veratrum doses that were below the toxic level; this fall in blood pressure was associated with peripheral vasodilation rather than with depression in cardiac output.

Early in the study of Veratrum in the treatment of hypertensive crises we employed a tablet which contained biologically standardized whole powdered Veratrum viride, designated as Vertavis.* When oral medication could not be satisfactorily administered, we employed an aqueous solution of the alkaloids of Veratrum, designated as Veratrone.* More recently, two highly purified fractions or extracts of Veratrum viride have been made available and have been employed for both oral and parenteral administration. These are designated as Veriloid* and Anatensol.* The action of these two agents given intravenously is essentially the same.

They are best given by slow infusion at a constant rate; and, with these drugs a striking hypotensive effect usually appears within 8 to 15 minutes—commonly but not invariably associated with bradycardia. Then the infusion is interrupted or retarded, so that the hypotension may be maintained or allowed to moderate.

The dose of these drugs must be calculated on the weight of the patient. An average dose of Veriloid is from 0.75 to 1.0 micrograms and Anatensol from 0.02 to 0.08 micrograms per kilogram per minute. In cases of acute emergency when the effects are desired as quickly as possible and when the patient is unable to retain medication orally, the parenteral method is preferred.

Our own experience has been confined to the use

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*The following trade-marks designate products used in this study: Vertavis (Irwin, Neisler and Company, Decatur, Illinois). Veratrone (Parke, Davis and Company, Detroit, Michigan). Veriloid (Riker Laboratories, Inc., Los Angeles, California). Anatensol (E. R. Squibb and Sons, New York, New York). Dramamine (G. D. Searle and Company, Chicago, Illinois). Banthine (G. D. Searle and Company, Chicago, Illinois). Nitranitol P.V. (William S. Merrell Company, Cincinnati, Ohio).

of Veratrone given subcutaneously in doses from 5 to 15 minims. Our procedure is to record the blood pressure and pulse at about 15 to 30 minute intervals. If there has been no lowering of blood pressure or pulse in one hour, the medication is repeated at the same or increased doses until the Veratrum viride reaction occurs. By this, we mean a hypotensive response in which the blood pressure will fall precipitously from previous high levels down to 100 to 120 mm. of mercury systolic and 40 to 60 diastolic—or even lower figures. The pulse slows down to a rate of 40 to 60 per minute. The patient salivates excessively, complains of burning of the throat or epigastrium, and often has nausea and vomiting. The electrocardiogram shows only a sinus bradycardia.

The hypotensive action and symtomatic improvement in such cases may be very striking indeed. The blood pressure as a rule remains at subnormal to normal levels from 4 to 12 hours and then gradually rises toward the previous level, but seldom attains the previous heights.

In order to maintain more nearly normal blood pressure level, one must either interrupt or retard the infusion or repeat the injections at 4 to 12 hour intervals according to the repeated determination of the blood pressure. Our practice has been to check the blood pressure every two to three hours. When the systolic pressure reaches the level of 170 or above, diastolic 110 or above, we give a hypodermic injection of Veratrone again, using either the same dosage or a smaller dosage, depending on the effectiveness of the medication. By this means one can effect a marked improvement in the general condition of the patient and control the acute crisis.

Oral medication is likewise effective when tolerated. The dose cannot be gauged as accurately as it is by the intravenous or parenteral route, and usually there is a greater tendency for vomiting. However, in at least 50 per cent of cases, it is possible to achieve a significant lowering of arterial pressure without any untoward symptoms. Our procedure is usually to give two tablets of Vertavis every hour; and, usually after three or four doses, the same dramatic Veratrum viride reaction as is obtained parenterally will result. The oral medication usually takes two and a half to three hours before it is effective. The physiologic response that occurs is just as positive as that seen by the hypodermic route and avoids the trauma of the needle. Oral medication is practical and effective both during the crisis and afterwards to prevent sudden rises in blood pressure.

The effects of this therapy are striking, as would be expected from the degree of depressor response. The cerebral symptoms disappear often within an hour. Left ventricular failure is frequently overcome within a few hours without administration of digitalis, as is manifested by the rapid clearing of pulmonary edema, disappearance of gallop rhythm and pulsus alternans, and by an increased urinary output. I have seen papilledema disappear within 24 hours.

Our only objection to this form of management is that the reaction to Veratrum is sometimes severe and the vomiting may continue for 30 minutes or longer. We have treated well over 100 patients with hypertensive crisis and have observed hundreds of reactions to Veratrum viride and can safely state that we have never seen any serious effect from the sudden profound reduction of blood pressure.

On the contrary, we feel this marked hypotensive effect is a requirement if we are to treat effectively the emergency which the crisis brings on. The administration of Veratrum viride requires close observation of the patient, and the blood pressure should be checked frequently in order to individualize the dosage. The results of such treatment in hypertensive crises are much superior to those obtained with any other form of drug therapy. These patients must, of course, be cared for in the hospital. As the oral administration of Veratrum for the treatment of essential hypertension is prolonged over a period of several months, the clinical results may become increasingly less satisfactory; however, the reduction in blood pressure present is such that the use of the drug is very worthwhile. Certainly thus far in our experience no drug is as effective in the control of hypertension as Veratrum viride.

The gastrointestinal side effects of Veratrum at times are very disturbing, and we have tried to reduce these symptoms by using atropine. Atropine will lessen nausea if given before vomiting occurs; after the vomiting has commenced, however, there is very little benefit from its use. Dramamine,* in a dose of 50 mg. three times a day, has seemed to be of mild benefit in some patients but not in others. Banthine,* 50 mg. three times a day, has been helpful in allowing certain patients to take larger doses of Veriloid or Veratrum viride. Other symptoms such as dizziness, weakness, tingling, numbness, stiffness, fatigue or coldness of extremities may come at the peak of the Veratrum response. Postural hypotension has been noticed and, if the hypotensive effects of Veratrum are too great, syncope or collapse may ensue. During a severe hypotensive reaction the patient usually vomits and is extremely distressed; however, such symptoms are more alarming than dangerous. I, personally, have never seen a patient die from Veratrum effect and, to my knowledge, no death has been reported by other observers.

The use of the various forms of Veratrum alone

was so encouraging in the treatment of vascular crisis that the study was expanded to include the routine use of Veratrum in essential hypertension in the hope that the blood pressure could be controlled, crises might be prevented, and patients could be made comfortable for a considerable period of time. Unfortunately, the gastrointestinal side effects associated with administration of a full therapeutic dose of plain Veratrum presented something of a limiting factor. As a result, combined therapy was considered. The product employed was designated as Nitranitol P.V.* Each tablet contains:

Mannitol Hexanitrate .....32 mg. (½ gr.)
Phenobarbital .....16 mg. (¼ gr.)
Veratrum Alkaloids ..... 1 mg. (1/60 gr.)

In calculating the Nitranitol P.V. dose of two tablets four times daily for patients with systolic pressures over 200, or one tablet four times daily in cases under 200, it was estimated that the amount of purified Veratrum fraction (8 mg. or 4 mg.) would be about ⅔ or ⅓, respectively, of the probable full therapeutic dose if Veratrum were the only hypotensive agent employed. It was hoped that the addition of phenobarbital and mannitol hexanitrate in the usual dosage would enhance the action of the Veratrum so that a majority of the patients would obtain gratifying symptomatic relief as well as objective decreases in blood pressure, and at the same time keep the dosage level of purified Veratrum at a low enough level to prevent nausea in a significant number of cases.

We have made a preliminary study of 24 hypertensive patients with the drug Nitranitol P.V. There has been a favorable therapeutic effect in all 17 of the 24 patients who tolerated the drug. In patients over 60, in whom nitrates are most effective, the compound has been particularly useful. Of seven cases who did not tolerate the drug, three suffered from Veratrum nausea, two complained of headache presumably due to mannitol hexanitrate, and two incurred a skin rash presumably from the phenobarbital. Further studies will be made to determine how long the beneficial effects in the remaining 17 patients can be maintained and the group will be enlarged to obtain a series of statistical significance.

Summary

Veratrum viride can be administered as the whole drug (Vertavis, Veratrone), as a purified extract or fraction (Veriloid, Anatensol), or in combination with mannitol hexanitrate and phenobarbital (Nitranitol P.V.).

Preliminary studies indicate that Veratrum products are useful in the treatment of vascular crises of hypertension; parenteral administration is frequently required. In routine treatment of essential hypertension Veratrum may prevent or diminish the frequency of such crises.

Combined administration using Nitranitol P.V. appears to be useful in that it permits a simplified or standard dosage schedule. As a result it is possible to give a quantity of purified Veratrum which reduces blood pressure but does not produce nausea as frequently as Veratrum products when used alone.

I wish to express appreciation to my former associates, Peter T. Bohan, M.D., and M. G. Berry, M.D., for their help and suggestions in the early work done on this paper; also to Irwin, Neisler and Company, and the William S. Merrell Company for supplying the drugs used in these studies.

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Committee Chairmen for 1953 Meeting

Dr. Howard C. Clark, president-elect of the Sedgwick County Medical Society, has announced the appointment of the following committee chairmen for the 1953 annual meeting of the Kansas Medical Society, to be held in Wichita, May 4-7, 1953:

General Chairman—Dr. Edward S. Brinton
Scientific Program—Dr. James B. Fisher
EENT Program—Dr. Norton L. Francis
Entertainment—Dr. Lester K. Nix
Reception—Dr. Lloyd P. Warren
Commercial Exhibits—Dr. Robert K. Purves
Scientific Exhibits—Dr. Bert E. Stofer
Publicity—Dr. D. P. Trees
Auxiliary—Dr. William H. Browning

A Towel Found in the Jejunum*

Homer B. Latimer, Ph.D.

Lawrence, Kansas

The finding of foreign bodies within the digestive tube and the abdominal cavity is not new, for Gould and Pyle ('37) have listed objects found by the Greeks, Romans and other cases in the 18th and 19th centuries. Crossen and Crossen ('40) have compiled a long list of cases, including sponges and other fabrics found in the intestines and abdominal cavity. One of the more recent cases is that described by Saltzstein and Rao ('47) of a sponge ulcerating into the ileum. Because of its size, location and the condition of the intestine, this case seems worthy of a published record.

This body of a colored woman, 72 years old, was one of the cadavers dissected in the anatomy laboratory. The cause of death was listed as a neoplasm of the left kidney. The body had been received, embalmed and held in one of the storage tanks until the fall of 1951, when it was brought into the laboratory. It was in good shape and, preceding the study of the abdomen, no anomalies had been found. It had only a moderate amount of fat.

The abdominal wall was wrinkled and creased as though fat had been lost before death. There were two faint scars visible, one a lower midline incision and the second a left lateral incision extending from a little below and about three cm. lateral to the umbilicus, to a short distance superior to it. The skin in the region of this second incision was heavy and wrinkled, and the scar was not easily seen. Both scars were old and it was difficult to determine their limits.

Between the umbilicus and the symphysis and in the midline was a protrusion of the skin about seven cm. in diameter. This skin was raised and irregular in contour and had little under it, or between it and the rest of the abdominal wall. When the skin was removed it appeared that the midline incision had not been completely closed at its upper end and only the hypertrophied fibers of the transversus abdominis muscle lay between the skin area and the fascia transversalis of the abdominal wall.

Some time after the cadaver had been dissected and the towel found, the following clinical history of the patient was obtained.

The patient was first admitted to the hospital in December of 1948. The diagnosis was senile dementia with ideas of persecution, the patient fearing the loss of money and possessions. She was kept a week or 10 days and no surgery was done.

She was admitted the second time 10 months later, on October 16, 1949. At this time she had an impairment of her speech and was unable to understand what was said to her. During the interval between the two hospital admissions she had been under the care of a private physician. She complained of pain in the upper left abdomen. She denied having had any operation or surgery at any time, and she never had had surgery at this hospital.

Physical examination: dehydrated, skin dry, blood pressure 152/85, rales in both chests, point of maximum intensity sixth interspace, aortic systolic murmur, and cardiac insufficiency. Irregular abdominal scar in lower midline around umbilicus. Liver not enlarged. Large mass in left side of abdomen and flank which extended from just below the costal margin to the left iliac crest. It was easily movable, hard and very tender. It appeared to be about 20 cm. in diameter.

She was anemic and gave no history of ever having had gastrointestinal work of any kind. She gave no indication of trouble of this sort.

Laboratory tests upon admission: blood 1,460,000, 29 per cent hemoglobin, 4.5 grams hemoglobin, hematocrit 17, van den Bergh 74, blood sugar 76, non-protein nitrogen 27, serology negative, white cells 2,750, lymphocytes 34, eosinophiles 2. The impression of the intern upon admission of this patient was (1) ptosis of the left kidney; (2) ptosis of the spleen; (3) splenomegaly, and (4) malignancy of the left kidney.

An excretory pyelogram was made on October 22, but no definite diagnosis could be made. The kidneys seemed normal in position and function, but there was apparently some sort of soft tissue mass which seemed to displace the left kidney upward and medially, and the radiologist felt that it was a retroperitoneal mass which suggested the possibility of a sarcoma or similar mass around the kidney. The death certificate was dated October 25.

When the abdominal cavity was opened in the course of the dissection, it was found that the right ovary, together with the right ovarian tube and the right broad ligament, had been removed and the uterus was tipped to the left. It appeared normal and evidently was a parous uterus. This right ovary was the only organ missing from the abdominal cavity.

An oval or kidney shaped enlargement of the jejunum was found in the left hypochondriac region, or immediately anterior to the left kidney. This was 25 cm. from the duodenojejunal junction. Both

*Department of Anatomy, University of Kansas.

kidneys appeared normal in gross appearance. This enlargement was palpated while still undisturbed in the cavity, and it appeared that the supposed neoplasm filled the lateral part of the mass and the intestinal wall between the two ends, or the side next to the midline of the body, was softer to the touch. Apparently this was the open part through which the intestinal contents were passing. This medial part was slightly concave superior-inferiorly as shown in Figure 1. The entire lateral part seemed uniformly firm to the touch.

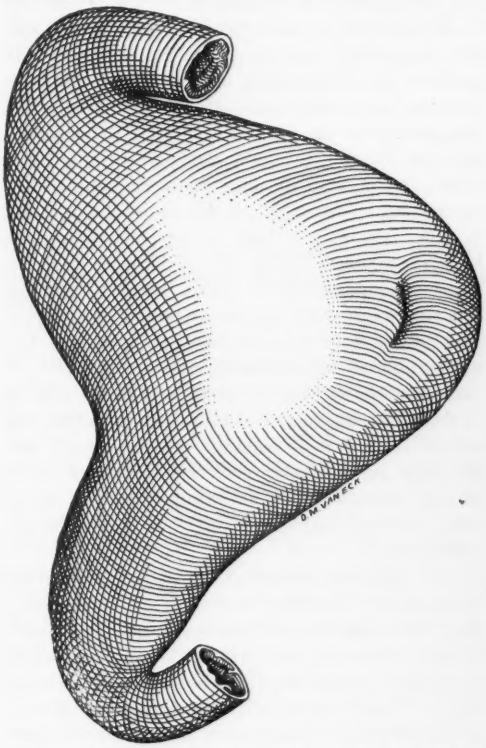

Figure 1. Drawing showing the anterior surface of the jejunal enlargement. Peritoneum has been removed showing opening through to posterior surface.

The entire digestive tube was removed later on, and there were no adhesions in this region, nor in any part of the entire abdominal cavity. The digestive tract appeared to be in good condition. The small intestine measured only about two meters in length, but intestines of this length are seen in the anatomy laboratory. The small intestine did seem to be somewhat greater in diameter than usual, but when it was opened the walls and mucosa appeared to be in normal condition. The stomach and the large intestine also appeared to be normal. Aside from this dilated portion, the entire tract would have been listed as a normal digestive tract.

This dilated portion measured 12 cm. in its superior-inferior diameter and the same in its transverse diameter, and 6.5 cm. in thickness or anterior-posteriorly. Like the rest of the digestive tube, it was not attached to the abdominal wall by adhesions, but was perfectly free, aside from its normal mesentery. The diameter of the intestine just proximal to this enlargement was 3.5 cm. and at the distal end it was 2.5 cm.

To open the "neoplasm" an incision was made along the lateral side or along the greater curvature, as shown in Figure 1. At this time the external surface was uniformly covered by peritoneum and the open and depressed area shown in Figure 1 was not seen. The knife went through the intestinal wall in a normal manner, but then the cutting became difficult. The knife seemed to be cutting a heavy or "stringy" substance. The incision was lengthened somewhat, and inside the cavity was found a heavy mass which first appeared like a folded mass of chamois skin. This was then easily pulled out and it proved to be the towel shown in Figure 2.

Figure 2. Photograph of towel showing foldings and eroded areas. Fine red lines woven into the cloth are not shown in the photograph, but are plainly visible in the towel itself. Notice the hem in the upper and lower borders.

This towel was completely impregnated with intestinal contents, and it required much careful washing to cleanse it. After it had been cleaned it was pinned out on a board and measured 40 x 54 cm. The creases were still evident although not well shown in the photograph, indicating that it had been folded once longitudinally and twice transversely. Some of the cuts at the two lower corners appeared as new cuts, made by the knife when the

first incision was made. Not well shown in Figure 2 are the fine red longitudinal lines woven into the cloth and spaced about five cm. apart. These are easily seen in the specimen where the cloth is in good condition and where the weave of the cloth is evident. The hems at the two ends can be identified. The cloth is most damaged in the regions which were on the outside when it was folded. It would appear that the right half, as shown in Figure 2, was folded inside and hence left in better condition, except in the upper right corner where it is badly eroded. This resembles the towels used to drape the body for surgery, and the folds are those of a sterilized towel.

After the towel had been removed this enlarged part of the intestine was carefully examined. A connecting mass or "bridge" of tissue was found (Figure 3) extending from the anterior to the

Figure 3. The enlargement opened to show the inner surface. Note the connection or "bridge" between the anterior and posterior surfaces. Area of plicae and villi are not shown between the openings, down the central part of the drawing.

posterior wall. This was four cm. long and it was about three cm. from the lateral wall, or the lumen of this opening between this "bridge" and the left lateral part of the intestine had a diameter of three cm.

Next the external surface was carefully reexamined, and a slightly depressed semi-lunar region was found on the anterior surface. The peritoneum was removed and this area is shown in Figure 1. The appearance of the posterior surface was the same. After the peritoneum covering this area had been removed, the blunt end of a dissecting probe could be passed through the opening in the connecting mass or "bridge" until it was stopped by the peritoneum covering the posterior surface of this enlarged part of the jejunum. The towel was found on both sides of this connecting mass. The surfaces of the connecting mass adjacent to the lumen of the intestine were covered with normal intestinal epithelium with plica circulares and villi. The part of the lumen to the left of the connecting mass seems to have retained to a greater degree its normal cylindrical shape as well as its normal epithelium.

The inside of the enlarged jejunum, together with this connecting mass, is shown in Figure 3. The incision was made along the lateral side and the anterior part turned to the left in the drawing. The top represents the intestine entering the jejunum, and the opening at the lower part of the figure shows the jejunum leaving this enlargement. The connecting bridge separates this cavity into a lateral or more tubular space and a more medial and also a more spherical space. Connecting the inferior edges of this "bridge" is a fold, not well shown in this figure but which can easily be felt in the specimen. This ridge or fold seems to arise near the caudal end of the connecting mass or "bridge" and extends over the two surfaces and medial border to the distal edge of the "bridge" shown on the other side of the figure. This ridge was more easily seen and felt on the inner surface. This appeared as though there were a thickening or folding of the intestinal wall along this line. This will be discussed later.

The inner surface of this enlarged part of the jejunum was carefully studied with the aid of a binocular dissecting microscope. Around the periphery of the area and covering the plicae circulares, good sized normal villi could be seen. Not shown in Figure 3 was a series of plicae circulares, not quite as high nor as well marked as around the periphery, extending across the area between the two openings and along the lesser or medial curvature of the enlarged intestine. Then, as one examined the epithelium toward the center of the anterior and posterior surfaces, the villi were lost, with only the intestinal glands showing in transverse section. In the central parts of the anterior and posterior surfaces all the epithelium seemed to have been lost, and the cavity was lined with the connective tissue of the submucosa. These transitions were not uniform. Areas with villi could be found surrounded by areas without any villi, or even without any intestinal mucosa. The areas covered with villi seemed to be in depressed regions.

Pieces of the adjacent intestine were examined and the villi were clearly visible, covering the plicae. These pieces were straightened out nearly flat, and

with a sharp scalpel the tops of the villi were removed. This was done with a light scraping action rather than attempting to cut off the ends of the villi. The results appeared like areas of this enlarged portion, or the intestinal glands appeared in transverse section. These areas were further eroded with the scalpel, and after all of the epithelium had been removed there appeared the connective tissue fibers of the submucosa. In other words, these pieces of normal intestine were made to resemble the regions of the enlarged part, suggesting that the towel had worn away the villi where there had been some "wear." In other areas subjected to greater action of the towel, all of the epithelium had been worn away, leaving the tunica submucosa lining the cavity of the intestine. Whether this is what had happened or not we do not know, but areas of this enlargement appeared under the binocular just as the areas of the intestine which had lost part or all of their epithelial layer.

The known facts concerning this towel have been given, and very likely the report should stop at this point.

The question is whether this towel was swallowed or left in the abdominal cavity at the time of one of the operations. Many cadavers in our laboratory have been found with various objects in the stomach, objects which, because of their nature, had obviously been swallowed. Hallett ('47) described several cases of swallowed foreign bodies, and one chapter in the book by Crossen and Crossen ('40) describes swallowed objects. This towel would have been rather large to have passed completely through the stomach and the duodenum. The other route would be from the abdominal cavity through the wall of the digestive tube into its location in the jejunum. Most of the sponges have been found passing into the colon or rectum. Only a few have been found passing into the small intestine, and these chiefly into the ileum. In several cases in which a sponge passed into the intestine, good sized or even large areas of adhesions have been found, such as the cases described by Reed ('46) and Saltzstein and Rao ('47). Crossen and Crossen ('40) described a sponge forming a "lump the size of a man's wrist, five or six inches long, in the lumen of the small intestine, the intestine itself being entirely free." This was in the jejunum four or five feet from the stomach. There were adhesions in the region of the stomach, and they concluded that the sponge had eroded into the stomach and then passed on down the tract to its location in the jejunum. There were no adhesions any place in the abdominal cavity in this woman.

If the erosion into the intestine is accepted, then this fold or thickened ridge connecting the caudal ends of this partition or "bridge" could be accounted for by the bulging out of the intestine above the "bridge" and this bulge meeting the intestine below and ultimately fusing with the inferior part of the jejunum. A part of the towel then was held by this portion or "bridge" and the new fused portion of the intestine provided a passageway for fecal material. When the enlargement of the jejunum was first palpated, the concave side felt soft as though it were an open passageway for the intestinal contents. The intestine proximal to the enlargement was slightly larger than that leaving this region. The part inferior to the enlargement was not collapsed as was the intestine in case No. 168 described by Crossen and Crossen ('40).

The entire digestive tube was carefully examined for any evidence of scars of any kind, but none were found. With the healing of the abdominal wall with so little visible scarring, one might expect nothing to remain visible in the intestines. The condition of the two scars on the abdominal wall would indicate that they had been made some time before her death. Hence there may have been sufficient lapse of time to have removed all of the adhesions if there had been any.

Each of these two postulated routes of entry for this towel seems to offer rather serious difficulties. The facts as far as they are available are presented. This towel was found in the jejunum 10 inches from the duodenojejunal junction, and that region of the jejunum had undergone marked changes as described. How it reached this position is unknown.

This report would never have been possible had it not been for the three students who were dissecting this cadaver: Mr. Francis R. Applegate, Mr. James M. Handley and Mr. Joe W. Smith. First they called our attention to this mass, asking for an explanation, and then throughout the study they carefully saved the remainder of the digestive tract and were inconvenienced and interrupted many times by further examination of the cadaver and by inspection of this material by many who were interested. Our thanks are also due to many others, physicians and faculty, who have looked at this material and have given valuable suggestions. To all of these we wish to express our most hearty appreciation. Our special thanks go to Dr. A. Denton Vail for his aid and advice.

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PRESIDENT'S PAGE

Dear Doctor:

The events of the past few days, while being particularly fortunate as far as the medical profession and its national position are concerned, present some very definite considerations which we think should be of interest to all of our membership.

We know that the following situations do obtain. First, and probably most important, is the fact that we have the assurance of a responsible government in Washington again. Second, we have the realization that the medical profession, locally and nationally, is in a much more favorable position now with regard to our "point of departure" upon the problems of the next four years or more. These two factors bring responsibilities.

These responsibilities, if correctly evaluated, imply an increase in our over-all obligations. Having become to a greater extent members of the team itself, it is our duty and obligation to cooperate with the program as completely as possible. Socialized medicine, or the total program of socialization of this country, cannot be prevented by a single individual. This will require the efforts of every right minded citizen, and particularly the efforts of each of us as physicians. The importance of being not only a good doctor but a good American citizen has never been as obvious as it is now. Let us all make a strenuous effort to become thinking, active, working American citizens.

We are approaching once more the great American day of Thanksgiving. May we approach this season of the year with a sincere and conscious recognition of what that tradition means to the United States, particularly because we realize our many definite reasons for being thankful.

EDITORIAL COMMENT

Fifth Annual Cancer Conference

The Fifth Annual Mid-West Cancer Conference will be held at the Broadview Hotel, Wichita, on Thursday and Friday, April 2 and 3, 1953. Physicians who attended these conferences in the past will remember them to be among the outstanding scientific events of the year. The committee already has plans well under way toward making this fifth annual conference exceptional even in comparison with previous programs.

Guest speakers will soon be announced, together with the program topics. Those already engaged for this event give promise for the presentation of a series of papers that will long be remembered. Presentations for the coming conference, like those of the past, will be designed to be of interest to evey physician who has occasion to see a cancer patient. Topics will be varied to appeal also to those specializing in the different branches of medicine.

The Sedgwick County Medical Auxiliary is preparing a schedule of events of interest to the wives, and they also will enjoy the banquet which will be held in connection with this conference.

As in the past, all members of the Kansas Medical Society and their wives are invited to attend. Also invited are physicians from any other state. Hotel reservations are available by writing directly to the Broadview Hotel in Wichita, and since this conference is growing annually in attendance, it is recommended that plans be made early for this meeting. At least the dates, April 2 and 3, should be recorded now. As the official program appears in the near future, more definite plans may then be made.

Journal Subscriptions

The Journal has discovered that long existing postal regulations governing Second Class mailing privileges have not been complied with and that this permit will be cancelled unless required changes will be effected as of January 1, 1953. Because a Second Class permit is of very considerable advantage to the Kansas Medical Society, the Editorial Board and the Council have voted to alter certain procedures in this regard.

The requirement most immediately affecting the membership is that the Journal must be individually subscribed for, and each member wishing to receive the Journal must pay at a rate of not less than half the established subscription price. This provides no change regarding dues-paying members since the Society has regularly apportioned part of the dues from each member toward his Journal subscription. The difference involves those members who are exempt from the payment of dues or assessments.

In the past, the Society has gladly paid those subscriptions. It is now learned that this is contrary to postal regulations because each subscription must be individually paid. Therefore, beginning with the January, 1953, issue of the Journal, honorary members, members who have been granted a leave of absence, and members in service, all of whom are exempt from the payment of dues, will no longer receive the Journal unless they individually subscribe and pay to this office, 512 New England Building, Topeka, Kansas, $2.00, which is half the established annual subscription rate.

The Society and the Journal regret that this has become necessary because it has always been the policy to provide non-dues-paying members with all privileges of membership. Actually, that is still in effect and is varied only because the Journal may not be mailed under Second Class privileges except upon individually paid subscriptions. It is recommended that those members who are involved in this change mail their $2.00 promptly to enable the Editorial Board to prepare its January mailing list well in advance of the date the publication is issued.

President's Commission to Report

During the spring President Truman appointed a special committee to study the health needs of the nation. He quite frankly advised that the findings of this committee, known as the President's Commission on the Health Needs of the Nation, would determine the type of socialized medicine legislation that would be promoted during the next session of the Congress.

The committee, under the direction of Paul R. Magnuson, M.D., has conducted a series of hearings throughout the summer, two of which the Kansas Medical Society was invited to attend. Dr. J. L. Lattimore of Topeka appeared before the committee in Washington, D. C., being asked to speak principally upon the general topic of Kansas methods for providing medical care for the indigent. Later during the summer Dr. W. F. Bernstorf appeared before the committee in St. Louis, being asked to speak upon the Kansas plan for providing medical care to rural areas. A great amount of testimony has also been received from individuals and organizations outside the medical profession, and of

course the findings of the committee are not known at present.

The committee is expected to report to the President on about December 1. Rumor has it that this committee will advise against all-out socialized medicine, but will criticize numerous segments of the present system of medical care. If the rumor is correct, and it cannot currently be substantiated, voluntary health insurance will receive a major share of the critical attention. Just what effect such findings will have upon future proposed legislation can only be conjectured. However, if the committee should follow the usual pattern already set by the proponents of socialized medicine, they will attack the cost of such insurance and will use as a supporting argument that half of the people in the nation are not protected through these plans. Again, this can only be guessed at, but if that proves to be the case, it appears that the only solution they can arrive at is to advocate the reduction of cost through federal subsidies and enrollment increases through compulsion. If that is not socialized medicine, then it most certainly is national health insurance, which the advocates of socialized medicine have regularly called their previous programs, and medicine will again face another round of its battle for survival. On the other hand, the committee may come up with some totally new idea, and in that possibility the December report shall be anticipated with more than usual interest.

Definitions

A CONSERVATIVE is one who thinks of the welfare of his family and his country first; who is willing and anxious to stand on his own two feet; earn his own living; save what he can; one who wants to spend his own savings; live under the American Constitution and the Bill of Rights; develop himself and his country according to the American system of free-incentive enterprise.

A "LIBERAL" is a Socialist, one who is determined to be liberal in the spending of someone else's money, not his own. He believes in handouts to the have-nots who won't support themselves; he is an internationalist and, as a do-gooder, demands that America support the underprivileged of the world. He is determined that the American taxpayer support the bankrupt governments of Europe, arm them and defend them with American troops at our expense.

At home, he is for free medical care, government control of schools, control of industry, higher pay for less work.

The "Liberal" is convinced that he is heaven-ordained to run the world and demands that billions of our tax money be handed over to him to spend as he pleases without the necessity of accounting for it. As a "Liberal" hates to spend his own money, he always gets himself in position to spend public funds or other people's money, for which he always arranges for ample compensation for himself. He is for government control of the nation and its industries, the support of the people from the cradle to the grave. In other words, he is a Socialist, no matter what flag he sails under at the moment.—*E. B. Gallaher in Clover Business Letter.*

Conference on Heart Disease

A one-day conference on heart disease, designed especially for the general practitioner, will be held at Winter V.A. Hospital, Topeka, on December 11 under the sponsorship of the Kansas Medical Society Committee on the Study of Heart Disease. Enrollment is open to all physicians, and no expense is involved except payment for a luncheon to be served at the hospital. The course will begin at ten o'clock in the morning.

Speakers will include several members of the faculty of the University of Kansas School of Medicine, prominent physicians of the state, and members of the medical staff at the hospital. The cooperation of the hospital staff makes the meeting possible.

An informal hospitality period following the day's program will present an opportunity for discussion.

A.M.A. Clinical Session in Denver

A number of Kansas physicians have indicated interest in the A.M.A. Clinical Session, to be held December 2-5, since the meeting this year will be in this section of the country, in Denver's newly enlarged municipal auditorium.

The meeting will open Tuesday morning for registration and viewing of scientific and technical exhibits and medical motion pictures. In the afternoon there will be colored television originating from Denver General Hospital, general lectures and eight separate clinical presentations. Nearly 200 lectures will be given during the session, covering obstetrics, pediatrics, diseases of the chest, cardiovascular diseases, neurology and psychiatry, fluid balance and kidney problems, traumatic surgery, medical therapy, hypertension, bone tumors, and other basic subjects.

Temporary Accreditation to Topeka Hospital

The school of nursing at St. Francis Hospital, Topeka, was not listed among the Kansas schools approved for temporary accreditation by the National Nursing Accrediting Service, as published in the September issue of the *Journal.* Since publication of that issue, the school has been approved for temporary accreditation, making all schools of nursing in Topeka now on an accredited basis.

Injunction Against Hoxsey Cancer Clinic

A victory for medicine resulted from a decision recently issued by the U. S. Court of Appeals for the Fifth Circuit, in the case of the United States versus the Hoxsey Cancer Clinic, a partnership, and Harry M. Hoxsey, an individual. Reversing the judgment of the District Court at Dallas, Texas, the Court of Appeals issued an injunction prohibiting the defendants from distributing in interstate commerce its liquids intended for the treatment of cancer in man.

The Hoxsey Clinic is located in Dallas, and ships its drugs to patients in many other states. According to the unanimous opinion of the court, "The overwhelming weight of the credible evidence requires a conclusion that the representation that the Hoxsey liquid medicines are efficacious in the cure of cancer is. . . false and misleading. The evidence as a whole does not support the finding of the trial court that 'some it cures, and some it does not cure, and some it relieves somewhat.'"

People in many parts of the country are taking the Hoxsey medicines. For the information of physicians who are asked about the clinic, the principles laid down in the court opinion are reported below.

". . . There is only one reliable and accurate means of determining whether what is thought to be cancer is, in truth and fact, actually cancer. This requires a biopsy, a microscopic examination of a piece of tissue removed from the infected and diseased region."

". . . The opinion of a layman as to whether he has, or had, cancer, or a like opinion as to whether he has been cured and no longer bears the disease, if, in fact, it ever actually existed, is entitled to little, if any, weight."

". . . Despite the vast and continuous research which has been conducted into the cause of, and possible cure for, cancer, the aggregate of medical experience and qualified experts recognize in the treatment of internal cancer only the methods of surgery, x-ray, radium and some of the radio-active by-products of atomic bomb production."

". . . Upon such subjects a court should not be so blind and deaf as to fail to see, hear and understand the import and effect of such matters of general public knowledge and acceptance, especially where they are established by the overwhelming weight of disinterested testimony."

A significant award, unique in medical journalism, has been bestowed upon *GP*, official publication of the American Academy of General Practice. It was chosen for honors by the American Institute of Graphic Arts, whose panel of judges complimented it on its excellence in graphic presentation.

Service Separations

As a service to physicians and communities in this state desiring additional medical personnel, the Journal of the Kansas Medical Society will publish in this column each month the names of medical officers who will shortly be separated from the armed forces. These are men who volunteered from Kansas, and many of them will probably be interested in finding locations in this state. Anyone interested in contacting these physicians may write to the address here given.

Niles A. Borop, Jr., M.D.
U. S. Army Hospital
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Frank C. Brosius, Jr., M.D.
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Wichita, Kansas

Herbert Bunker, Jr., M.D.
U. S. Army Hospital
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Eran O. Burgert, Jr., M.D.
2620 East Waterman
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Mayer Fisch, M.D.
Winter VA Hospital
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Charles C. Gilkey, M.D.
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Robert Weimer, M.D.
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George A. Westfall, Jr., M.D.
Hertzler Clinic
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612 Eighth Street
Concordia, Kansas

BLUE SHIELD

Questionnaire on Home Coverage

While a significant number of physicians in Kansas favor some form of home coverage for serious illnesses by Blue Shield, there was enough opposition to the idea to make it still a highly debatable move. Out of 345 doctors replying to a questionnaire sent out by the Kansas Medical Society on the subject, 158 indicated they would favor Blue Shield taking this step in the direction of home coverage for serious illnesses. However, 132 opposed the plan with 55 indicating no opinion. It is interesting to note that of the total number replying to the questionnaire, the vast majority indicated that their medical practice for serious cases was usually done in hospitals. Only 50 doctors indicated a practice exclusively outside a hospital.

There is some doubt in reviewing the results of the questionnaire as to whether or not all those replying understood that the subject under study was primarily for so-called serious cases treated in the home. This is indicated by the answers to one question which asked the doctors to suggest certain types of cases which might fall under this coverage. A great number of the replies listed straight coronary conditions, diabetes without qualifications and miscarriages, and several listed senility as a possible illness to be covered.

The primary arguments by those in favor of the coverage were as follows:

1. That this form of coverage would be appealing to a great number of people in rural areas who do not ordinarily use the hospital.
2. That coverage of home cases might cut down the instance of hospitalization and thus save Blue Cross funds.
3. That such a program could be controlled through proper reporting and would not be significantly abused.
4. That such a plan would help Blue Cross-Blue Shield in meeting competition.
5. That it would help to meet the problem in those areas where hospital beds are in short supply.
6. That the plan would help Blue Shield in its physician relations by bringing into the fold that group of doctors who do not practice in the hospital.

Major arguments against the plan were as follows:

1. It would increase the Blue Shield rate structure and be resisted by the public.
2. That not enough people need this type of coverage since most serious illnesses are hospitalized.
3. That the plan would be open to considerable abuse.
4. The plan would be misunderstood by the public since it would have to be limited to certain illnesses, and many people would not understand why one type of illness would be covered and another not.
5. That the mileage factor would be an insurmountable problem.

One of the questions on the questionnaire attempted to get an answer as to what the doctors would expect in the way of payment for home calls. Of those replying to this question the following tabulation resulted:

$3.00 per call	94
$4.00 per call	49
$5.00 per call	64

The predominant view as to what kind of deductible feature should be incorporated into the plan was that a three-visit deductible should be made. However, a significant number thought that the deductible should be five visits, whereas 41 doctors thought there should be no deductible.

Several verbatim comments are listed below to give an idea of the interest shown in the questionnaire:

THOSE NOT IN FAVOR:

It is not practical. Would create bad feeling as far as Blue Shield is concerned. No way it could cover all the expenses without making policy prohibitive. People would expect total cost to be paid. The 25 per cent which cannot pay for long home illness could not or would not be able to carry Blue Shield.

* * *

Encouragement of home care for "serious illness" is ridiculous if we are to assume that hospital care has anything to offer this category patient. Modern transportation is available in most of Kansas.

* * *

Increase in costs would not warrant inclusion in plan. Too many members are objecting to or dropping out of present plan because of increased cost. Many would drop Blue Shield and retain Blue Cross if Blue Shield costs increase.

* * *

In view of our increasing number of small hospitals in more rural areas, I feel above plan would complicate matters and tend to not support smaller hospitals.

* * *

VERY difficult. Every drunk, dope addict, neurotic, undiagnosed or undiagnosable ache and pain of old age would climb aboard for a ride on this program. Would have to be very specific and lim-

ited insurance or it would bust the insurance company quickly.

* * *

THOSE IN FAVOR:

For communities without hospital facilities, the service is definitely indicated. When epidemics occur and hospital space is unavailable, it doesn't seem fair to penalize subscribers for this condition.

* * *

Have urged this sort of program repeatedly at Blue Cross-Blue Shield Physician Relations Committee meetings. Believe it can be worked out if full cooperation of doctors can be obtained.

* * *

Blue Shield-Blue Cross losing appreciable number of subscribers to other insurance plans that offer or claim to offer home services. I feel the plan could best be worked out by our organization and feel it will be necessary before long.

* * *

By payment of home calls many hospital days may be saved, by dismissing patient earlier or not admitting to hospital at all. Blue Cross enrollment would probably increase in rural areas where hospitals are not close by.

* * *

Yes! We are 20 miles from hospital, beds not always available. These people not accustomed to hospital care and hard to get some of them in.

* * *

The doctors not having access to hospitals have a legitimate right to feel Blue Shield is shunting their practice to the more favorably located physicians.

* * *

Too much premium is paid for sending patients to hospital. Many minor cases are sent there in order to collect the insurance.

* * *

Chronically ill are kept in hospitals because they have Blue Shield. In the long run it might save Blue Shield money.

* * *

The results of the questionnaire will be considered carefully by the Fee Committee of the Kansas Medical Society and a further report of their recommendations will be made.

Kansas Trudeau Society Meets

A meeting of the Kansas Trudeau Society was held at Pittsburg on October 2, and the following officers were elected for the coming year: president, Dr. Lawrence E. Wood, Kansas City; vice president, Dr. Andre Baude, Topeka; secretary-treasurer, Dr. Paul H. Wedin, Wichita. Dr. Gerald B. Pees, Iola, was selected to represent Kansas on the Advisory Committee of the American Trudeau Society.

Speaker at the meeting was Dr. Richard P. Jahn, of Marquette University School of Medicine, who discussed "Recent Advances in the Diagnosis and Treatment of Pulmonary Emphysema."

Committee on Pathology Appointed

At the request of the Council of the Kansas Medical Society, Dr. W. F. Bernstorf, president, has appointed a special committee on pathology. The chairman of this committee is Dr. John L. Lattimore, Topeka, and the members are Dr. Robert E. Stowell, Kansas City; Dr. B. E. Stofer, Wichita; Dr. T. R. Hamilton, Kansas City, and Dr. N. P. Sherwood, Lawrence.

This committee will be interested in problems relating to pathology and laboratories in Kansas.

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DEATH NOTICES

BESSIE BELLE LITTLE, M.D.

Dr. Belle Little, 81, an active member of the Riley County Society, died at her home in Manhattan on September 24. She had retired from practice last December because of poor health. She was graduated from Women's Medical College, Philadelphia, in 1906 and began practice in Manhattan after her internship in Boston. Dr. Little's work was chiefly among women and children, although she engaged in general practice. With her father, the late Dr. Charles F. Little, she founded a hospital in Manhattan and continued to operate it until 1936, when it was sold to the Sisters of St. Joseph and became St. Mary Hospital.

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JAMES DINWIDDIE BOWEN, M.D.

Dr. James D. Bowen, 46, Topeka surgeon, died October 3 after an illness of two years. He was a graduate of Cornell University Medical College with the class of 1931 and served his internship at Ford Hospital, Detroit. He practiced four years in Whiting and then moved to Topeka to be associated with his brothers, Dr. Harry J. Bowen and Dr. Clovis W. Bowen. He was an active member of the Shawnee County Society and a fellow of the American College of Surgeons. During World War II he spent 32 months in the Caribbean area with the Army air force.

ACTIVITIES OF MEMBERS

Dr. C. V. Black, Pratt, has been named Pratt County health officer to replace Dr. F. P. Wolff, who reported for military duty at the Navy Air Station, Corpus Christi, Texas, November 1.

* * *

Dr. Charles V. Haggman, Scandia, who has delivered more than 1,000 babies in his practice of 51 years there, was honored at a community celebration on October 10. He was also guest of honor at a staff dinner at St. Joseph's Hospital, Concordia, on October 15. He retired from practice on November 1 and with Mrs. Haggman went to Kingsport, Tennessee, to live with a daughter.

* * *

Dr. Clarence H. Benage, Pittsburg, was appointed last month to serve as chairman of a Kansas Professional Committee for Eisenhower and Nixon. Dr. Elmer L. Henderson of Louisville is chairman of the national organization, set up as a bi-partisan committee not affiliated with either political party.

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Dr. John M. Anderson resigned on November 1 as superintendent of the Topeka State Hospital to return to private practice in Atlanta, Georgia.

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Dr. Leslie E. Knapp, Wichita, became a fellow of the International College of Surgeons at a meeting held in Chicago last month.

* * *

Dr. Dwight Lawson, Topeka, was named medical director of Kansas Vocational Rehabilitation recently. He replaces Dr. Charles R. Rombold, Wichita, who resigned after many years service.

* * *

Dr. Morgan L. Mollohan, Seneca, announces that Dr. Wesley A. Innes is now associated with him in practice. Dr. Innes was graduated from the University of Kansas School of Medicine and practiced in Excelsior Springs before being called to active duty with the Navy, from which he was recently released.

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Dr. William A. Smiley, Jr., Junction City, became a fellow of the American College of Surgeons at a meeting held in New York late in September.

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Dr. R. W. Edwards, Pratt, was recalled to active duty with the Navy on October 15. He was sent to the U. S. Naval Hospital, San Diego.

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A number of Kansas physicians took part in a celebration held at the Hertzler Clinic, Halstead, on September 21, the 50th anniversary of the founding of the clinic. Among them were Dr. L. O. E. Peckenschneider, Halstead, toastmaster; Dr. V. E. Chesky, Halstead; Dr. H. R. Wahl, Kansas City, and Dr. Lyle F. Schmaus, Iola.

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Dr. Robert E. Hull has returned from service in the Navy and is now associated in practice with Dr. C. L. Scuka, Wichita.

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Dr. B. C. Beal, Clearwater, was guest of honor at a community celebration on October 10. Dr. Beal recently completed 50 years of medical practice. The celebration included a parade, a luncheon and a program.

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Among Kansas physicians who took part in a meeting of the Kansas City Southwest Clinical Society last month were Dr. Maurice J. Ryan, Dr. O. W. Davidson, Dr. W. H. Algie, and Dr. D. N. Medearis, who presided at different sessions; Dr. E. Grey Dimond, who spoke on the mechanism of congestive heart failure; Dr. Sloan J. Wilson, who discussed secondary anemias and pseudoanemias; Dr. A. M. LeMoine, Jr., who talked on common eye injuries; Dr. F. J. Nash, who took part in a panel discussion, and Dr. Robert B. Wilson, who spoke on sinus disease.

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The Cook County Graduate School of Medicine, Chicago, announced last month that three Kansas physicians were enrolled there for postgraduate work, Dr. Denman T. Gammell of Hugoton, Dr. William R. Brenner of Larned, and Dr. Walter J. Pettijohn of Russell.

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Dr. William P. Williamson and Dr. Clarence L. Francisco, both of Kansas City, became fellows of the American College of Surgeons at a meeting held in New York City recently.

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Dr. L. A. Latimer, Alexander, was guest of honor at a dinner meeting of the Rush-Ness County Medical Society, September 26. Dr. Latimer is retiring after 43 years of practice. The Society reported, "We can truly and sincerely say that Dr. Latimer has earned the respect, confidence and admiration not only of his patients but of all the doctors who have known him."

* * *

Dr. W. F. Bernstorf, Winfield, president of the Kansas Medical Society, Dr. H. H. Jones, Sr., also of Winfield, and Dr. W. Clarke Wescoe, dean of the University of Kansas School of Medicine, were speakers at the dedication of a new annex of Newton Memorial Hospital, Winfield, on September 28.

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Dr. Charles A. Crockett, Kansas City, reported

at San Diego on October 28 for active duty in the Navy medical corps.

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Dr. Thomas G. Orr, of the University of Kansas Medical Center, was Kansas governor on the Board of Governors of the American College of Surgeons at its meeting in New York City in September.

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Dr. T. F. Morrow, Wichita, is co-author of a paper, "Insulin Coma and Psychotherapy," published in the October issue of the A.M.A. Archives of Neurology and Psychiatry.

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Dr. Herbert C. Miller, professor of pediatrics at the University of Kansas School of Medicine, spoke on "Pathogenesis of Hyaline Membranes" and "Treatment of Bulbar Poliomyelitis" at a meeting of the Texas Pediatric Society in Dallas last month.

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Dr. A. J. Horejsi, Ellsworth, has been named by the Kansas Heart Association to conduct a public meeting on heart disease at Ellsworth on November 13.

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Dr. G. M. Martin, director of the Division of Maternal Health and Child Welfare of the Kansas State Board of Health, began a year's postgraduate work at Harvard University in September. He plans to return to Topeka on completion of the course.

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Dr. Robert E. Stowell, chairman of the Department of Pathology and Oncology at the University of Kansas Medical Center, discussed "Evaluation of Cancer Serodiagnostic Tests" before the American College of Surgeons at its recent New York meeting.

* * *

Dr. Clovis W. Bowen and Dr. Harry J. Bowen, Topeka, announce that Dr. Floyd C. Beelman is now associated with them in practice. Dr. Beelman recently returned from Washington, where he served as chief of the Organization and Operations Branch, Health and Special Weapons Defense Division, Federal Civil Defense Administration. He is now engaged in general practice.

* * *

Dr. John G. Shellito, Wichita, spoke on "The Need for a Tuberculosis Hospital in the Wichita Area" before the Business and Professional Women's Club there on October 14.

* * *

Dr. Byron W. Walters, who practiced in Marquette before going to Cleveland for postgraduate work in ophthalmology, has taken over the practice of Dr. John A. Holmes in Lawrence. He will engage in general practice and devote part time to his specialty.

Dr. Philip Goering, who has been practicing in Kingman since July, closed his office last month to enter military service.

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Dr. Galen M. Tice, chairman of the department of radiology at the University of Kansas School of Medicine, has been appointed to serve as a member of the Teletherapy Evaluation Board at the Oak Ridge Institute of Nuclear Studies. Dr. Tice participated in the formation of the board recently and outlined plans to test new multi-curie radiation sources now available.

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Dr. C. H. Lerrigo, Topeka, for many years executive secretary of the Kansas State Tuberculosis and Health Association, was guest of honor at a luncheon given by the association on October 2.

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Dr. Paul H. Lorhan, head of the department of anesthesiology at the University of Kansas Medical Center, was one of the guest speakers at a meeting of the Colorado Chapter of the American Academy of General Practice last month. His subject was "Anesthesia Problems."

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Dr. David G. Laury, who has been practicing in Baldwin in association with Dr. V. H. Hildyard, recently received orders to report at the Olathe Navy base on November 7 for active duty.

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Dr. John L. Lattimore, Topeka, has been selected to serve as a member of the Committee on Indigent Care of the Council on Medical Service of the American Medical Association.

* * *

A feature story on Dr. Franklin D. Murphy, chancellor of the University of Kansas, was published in the section on "Medicine" in the October 27 issue of *Time Magazine.*

Antibiotics, which have changed the basic structure and character of the pharmaceutical industry in the past 10 years, will continue to be increasingly important, in the opinion of Graydon L. Walker of Parke, Davis and Company.

"A definite trend appears to be developing in the vast amount of research being done in the field of antibiotics," he said. "Not long ago, research effort seemed to be directed toward a search for antibiotics that would be effective on an increasingly wide segment of the bacterial spectrum. Today, there appears to be more and more interest in developing new antibiotics which would be specifically effective against one or a very few organisms. It seems likely that the antibiotic ammunition of the future will fit a rifle, rather than a shotgun."

Case Report From The University of Kansas Medical Center

Medical Thyroid Crisis

Edited by Glen R. Shepherd, M.D., and Mahlon H. Delp, M.D., from recordings of the conference participated in by the departments of medicine, pathology, radiology, and surgery and the junior and senior classes of medical students.

Case Presentation

S. H., a 69-year-old white woman, was admitted to the University of Kansas Medical Center on June 7, 1950, for toxic goiter. She died two days later.

This patient first became ill in June, 1948, with swelling of the feet and ankles and pain in the joints. She was treated by a local physician without improvement. A diagnosis of hyperthyroidism was made later in a neighboring city. Improvement occurred with some unknown treatment. The patient lost her edema and began to feel better.

Almost two years later, in May, 1950, the patient suffered an apparent cerebrovascular accident while working in the garden. She had inability to speak, walk or arise from the ground where she had fallen. She was put to bed. One hour later she began to have a return of her speech and within several hours she was able to move the extremities on the right. Two days later, she was taken to a hospital, given iodine and was then sent here.

Past history included hypertensive cardiovascular disease, duration unknown. The patient had had dyspnea on exertion, orthopnea, and swelling of the feet and ankles for two years. Apparently hypertension had been present for 12 years. The patient had had pain and burning on urination for an unknown length of time.

On physical examination, the blood pressure was 100/80, pulse 120 and irregular. She was a small woman, flushed in appearance, having a red face and skin amounting almost to erythema. The skin was dry, as were the tongue and mucous membranes. Respiration was rapid. She was delirious with a general trembling. Eye examination revealed no abnormalities. Ear, nose and throat examination showed only the dry tongue noted above. There was no lymphadenopathy. Examination of the neck showed a palpable thyroid in the suprasternal notch. Dullness extended below the upper sternum. Lung examination revealed no unusual physical findings. The heart was fibrillating rapidly, but no murmurs or thrills were observed. Pulse deficit was present. The abdomen was distended, with loud borborygmi. No organs or masses were palpated. There was excoriation of the vagina and buttocks due to diarrhea for the past week. Neurological examination was completely unsatisfactory because of the excitable state of the patient.

Laboratory examination: urinalysis showed an acid reaction, specific gravity 1.012, trace albumin, negative sugar, pus count 10,500 per cu. mm., hematest 2 plus, some bacteria and amorphous matter. Complete blood count showed 5,380,000 red blood cells, 87 per cent hemoglobin or 13.5 grams, 6,400 white blood cells, 69 polys (all filamented), 22 lymphs, 1 basophile, and 8 monocytes. Wassermann and Kahn were negative. Blood chemistry showed the following: NPN 47, creatinine 1.5, sugar 110, sodium chloride 80 milliequivalents, carbon dioxide 46.8 vol. per cent (bicarbonate ion 21.06 meq.), calcium 5 meq., phosphorus 2.2 meq., cholesterol 204 mg., cholesterol esters 95 mg. or 47 per cent. Acid phosphates 2.2 King-Armstrong units, alkaline phosphatase 10.8 u., serum sodium 146 meq., and serum potassium 5.5 meq. Urine culture showed a heavy growth of E coli. Sedimentation rate showed a drop of 11 mm. in one hour.

Upon admission the temperature was 101° F., rectally and remained between this and 103.6° F. She was given both I.V. and subcutaneous fluids. On June 8, she was given radioactive iodine by mouth for uptake estimation.. At this time she was also started on penicillin. It became apparent on June 8 that she could not be maintained for two weeks without the use of iodine and propylthiouracil by mouth. Therefore these substances were started. She was given 10,000 cc. fluid on June 9. However, despite the above efforts, the patient expired on June 9 after a rapid clinical deterioration characterized by increasing pulse and respiratory rates, rise in temperature, and increase in delirium.

Question: Did the patient have areas of massive edema?

Dr. Robert Jenson (medicine resident*): She did at the time she died. She was markedly edematous in all extremities.

Question: In the lungs?

Dr. Delp (chairman): She had pulmonary edema, I suspect, for at least three hours before death.

Question: Was a BMR done at any time? Do you have any knowledge of weight loss?

Dr. Jenson: No, a BMR was not done. Although she had weight loss, the amount is not known.

*Dr. Jenson now is in Boston wtih a fellowship in metabolic diseases at the Massachusetts Memorial Hospital.

Question: Was she taking any iodine or thiourea before she came in?

Dr. Jenson: She was taking iodine, but probably not any thiourea.

Question: Do you know if she got any the day before or the day she came in?

Dr. Jenson: No, we don't know that.

Dr. Delp: We are reasonably sure that she had Lugol's solution the day before she came in. However, we know nothing about what the actual dose was. Probably it was only 10 drops the entire day. We have no reason to believe that she had any thiouracil or propylthiouracil at any time.

In the history there was vague allusion to the fact that when she had been seen previously the year before she had been given some sort of tablets. We are reasonably sure that one of those tablets was digitalis. We think it was probably whole leaf digitalis, but we know not what the other tablets were. Perhaps the patient had propylthiouracil for a period of time during her first hospitalization.

We don't think she had any thiouracil or propylthiouracil at the second hospitalization immediately prior to coming here.

Question: Is there any record of urine output?

Dr. Jenson: No. She was incontinent.

Question: I would like to know a little more about the stroke she had.

Dr. Jenson: The patient had a transitory right hemiplegia with an aphasia.

Question: Does anybody know how high her blood pressure had been previously?

Dr. Jenson: It had been well over 200 mm. of mercury systolic. The blood pressure chart shows that when she arrived her blood pressure was 180/70. It rose to 190/80. Just before she died it was 120/50.

Question: Was papilledema ever observed at any time during her hospital course?

Dr. Jenson: No. I looked at her eye grounds for changes. There were none at all.

Question: Was the flushed appearance she had due to a rash? Was it a rash or just a pigmenting of the skin?

Dr. Jenson: It was flushing of peripheral vasodilatation, not a rash.

Question: Did she receive any digitalis at the end?

Dr. Jenson: Yes, 0.2 mg. of purodigin daily.

Dr. Delp: We have the electrocardiographic tracings. You can see that the patient had a tachycardia. The patient had a prolonged PR interval. You notice the cupping of the ST segments which we think cannot be accounted for on the basis of the tachycardia alone, although it is a fair grade of tachycardia. We think that is undoubtedly digitalis effect. The unipolar leads add very little.

We would suspect a large left ventricle because of the height of the QRS complex, the width of the QRS complex, and the delay in the intrinsicoid deflection. We certainly would interpret that cradling or cupping of the ST segments as being indicative of digitalis effect, and perhaps digitalis intoxication. That is why the patient was placed on only a maintenance dose of digitalis. With that degree of tachycardia, you would be seriously tempted to redigitalize the patient unless you had the electrocardiographic evidence of intoxication.

Differential Diagnosis—Clinical Discussion

Mr. Richard Walters (senior medical student*): Apparently the problem here isn't one of diagnosis because two of them are given to us. However, I think I had better confine my remarks to what we have here and not what we don't have.

We know definitely that this woman had had a hypertension for some time, between 10 and 12 years.

There is great value in trying to make one diagnosis fit all of the symptoms of the patient. Since we have one condition which can explain her hypertension and her other symptoms, I give my vote to thyrotoxic heart disease as a cause of her hypertension. The most likely cause of the May, 1950, episode would be cerebral vascular accident. Because she might have been fibrillating at that time, which is common in thyrotoxic heart disease, possibly an embolus obstructed cerebral circulation. However, an embolus would produce a longer-lasting damage than she had. Her sudden recovery suggests the presence of a transient thrombosis, a spasm of the cerebral vessels or even hypertensive encephalopathy.

*Dr. Walters received his M.D. in 1950. After completing his internship in Wesley Hospital, Wichita, he entered private practice in Wichita, Kansas.

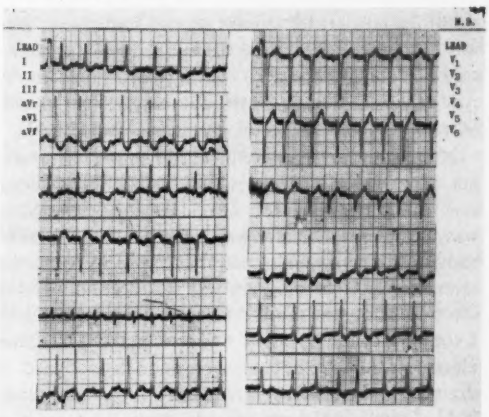

Figure 1. EKG, showing tachycardia, prolonged PR intervals, cupping of the ST segments (both digitalis effects), and heightened and widened QRS complexes.

Now as to the cause of death in this patient. The most common cause of death, I think, in thyrotoxic and hypertensive cardiovascular disease is heart failure itself. We might expect to find a little hypertrophy and perhaps some dilatation of this heart.

Dr. Delp: Do you think she really died of congestive failure?

Mr. Walters: No, I don't. I think the cause of her death was delirium from a combination of acidosis, anoxemia, and edema of the brain.

Dr. Max Berry (Medicine): This was not an uncommon clinical problem in the past. Maybe in the future we won't see many of them. I think with the methods we have available for handling thyrotoxicosis at present that probably we can prevent a large majority of patients going into this situation.

This patient was pretty well presented by our student. I have little to add except the name of the condition the patient had when she came here. It was certainly a thyrotoxic crisis. She had a hyperthyroid storm, or whatever you want to call it.

Now to trace our diagnosis. She had a history of hyperthyroidism, recognized a couple of years ago. Perhaps she had hypertension, and maybe she had hypertensive heart disease. With a systolic blood pressure of 200 mm. of mercury, we can assume that she probably did have some hypertension. But I don't believe that the hypertensive heart disease was bothering her very much or entered too much into the picture that she had here. I won't say it is probable, but it is possible that she had no hypertension per se except that associated with her hyperthyroidism when seen earlier.

She apparently went into a crisis. Why she did that I don't know. Whether she was taking iodine and propylthiouracil, or whether she was taking one or the other, or whether she couldn't take propylthiouracil, or for some reason something else was bothering her and she didn't receive the medicine that was necessary to control her, I don't know. Anyway, she was in thyroid crisis before arrival here.

Now for the events which transpired after she got here. I don't believe it is possible to say what else could be done for her. Her clinical picture was fair. Her pulse rate was 120. She had a marked tachycardia. I assume that that probably occurred after the electrocardiogram was made, although that electrocardiogram showed a rate that was quite fast. I couldn't count it, but it was well up to 150. That electrocardiogram also showed enough evidence of digitalis intoxication that we knew we should withhold digitalizing doses of that medicine from this patient. Digitalizing doses of digitoxin or of digitalis in any form probably wouldn't have done any good in this case anyway. These patients don't respond to foxglove as do ordinary patients with heart disease.

Regarding the routine treatment of the thyroid storm or thyrotoxic crisis, oxygen, fluids, iodine, sedatives, digitalis, and plenty of fluids are indicated. About two-thirds of the patients die who are as bad as she apparently was. That is probably about the mortality no matter what you do for them.

Theoretically, the management should have consisted of keeping her as quiet as possible, supporting her as much as possible, preparing her with iodine, and preparing her with propylthiouracil in large enough doses that her thyroid function would diminish. Prior to the availability of radioiodine, surgery was the treatment of choice after the patient quieted down. With enough iodine, enough propylthiouracil, and other management as mentioned, if it could have been given soon enough, this patient might have been quieted down. This could be termed a medical thyroid crisis. Usually thyroid crisis appears on the first to fourth days following surgery, when a large amount of thyroid secretion occurs. The patient appears as a greatly exaggerated hyperthyroid patient.

I don't believe that we can assume that a miniature dose of radioactive iodine would have precipitated any sudden change in this patient's condition. Was there any such change?

Dr. Jenson: She continued to get worse.

Dr. Berry: But she didn't suddenly get worse, did she?

Dr. Jenson: Well, I believe she did.

Dr. Berry: An embolus thrown from the auricle on the left side as a result of the transient attack of auricular fibrillation probably accounts for the May, 1950, episode. She recovered from that quickly, which is almost always the clinical course of an embolus rather than of any other condition. She had a local cystitis and probably not a pyelonephritis. Her heart enlarged as a result of its overwork, and she may have had arteriosclerotic heart disease. If she did have it, I don't think it had anything to do with her death. In other words, I don't think she had a coronary occlusion. She probably had a little pneumonia and edema of the brain and maybe some other findings that would be the final process in a patient who is dying of hypermetabolism from a thyroid storm.

Pathology Report

Dr. Robert Owens (pathology resident*): The findings were primarily in the thyroid gland. It was enlarged, weighing 120 grams. Two-thirds of it was substernal in location. The left lobe was three to

*Dr. Owens is now in his third and last year of urology residency, K.U.M.C.

four times larger than the right. However, they were both enlarged. There were numerous areas of softening. The cut surface was nodular.

The heart weighed 275 grams, which is not a large heart at all. She was a small woman. You might say there was some enlargement there because there was more enlargement of the right than of the left ventricle. The right ventricle was flabby and dilated, and there was probably also some left ventricular dilatation.

There was quite a bit of fat padding, congestion and wetness throughout the lung cells. There was no free pleural or peritoneal fluid.

Also there was a 1½ x 1 cm. nodule found hanging from the liver. Grossly, it resembled liver.

On opening the head, we noted an increased amount of cerebral edema as well as meningeal edema.

The gross diagnosis is a nodular hyperplasia of a substernal thyroid, pulmonary congestion and edema, meningeal and cerebral edema, and acute cardiac dilatation.

Dr. T. R. Hamilton (Pathology*): Microscopic examination of the heart muscle showed no evidence of myocarditis. The muscle cells were enlarged and in these hypertrophied forms enlarged nuclei were observed which were hyperchromatic We saw no evidence of coronary disease.

Section of the lung showed a purulent bronchitis with early bronchopneumonia.

Microscopic examination of the thyroid did not show the proliferation of the gland that you see in the usual picture of exophthalmic goiter. There were degenerative changes. This was the so-called adenomatous or nodular goiter but not true adenomata. There were micro-follicles along with the macro-follicles in the nodules. This was not the true fetal adenoma or true adenoma at all, nor was it the picture of true hyperplasia.

Changes in the tubular cells of the kidney were multinuclear types of degeneration and regeneration. They were probably on an anoxic basis similar to that in the liver. This was a metabolic disease, thyroid crisis, in which the patient died of an early terminal bronchopneumonia.

Cut sections of the brain showed evidence of a degeneration that was about the proper duration for this patient's cerebrovascular accident. We didn't find evidence of actual closure of the vessel. I believe that this may have been associated with the generalized anoxia to the tissues which was, of course, accentuated as the patient went into a failure or fibrillation some few months ago.

Dr. Delp: Dr. Helwig, we would like to hear any comments you care to make about this case.

Dr. F. C. Helwig (pathology): In the first place, I can't agree with Dr. Berry about the frequency of thyroid crisis. It is a pretty rare disease since Plummer gave us Lugol's solution.

There are obviously two classical types of so-called thyroid crisis, one which we see in frank Basedow's disease and the other in the degenerating nodular goiters without eye signs, as in the present case. Usually those with either primary or secondary Basedow's disease will show rather marked exophthalmos. Examination of the gland in those individuals will show an extraordinary degree of papillary hyperplasia. However, with the nodular toxic goiter, which I feel this represents, there is a burned out gland.

I recall a patient during my internship with Hertzler who came in and died in a matter of two or three days, just as this patient did, despite all the things which we did in those days. That patient had scarcely any glandular tissue left at autopsy.

Particularly since the advent of Lugol's solution, thiouracil and propylthiouracil, we pathologists are really handicapped in telling very much about the character of the gland histologically in regard to what the patient had. These drugs have been a great boon for the patient, but the alterations in thyroid structure produced by them makes correlation of histopathological changes and clinical manifestations difficult.

Now I think it has been held by some investigators that over half of the iodine in the body not incorporated within the gland itself is distributed to the muscles. These patients with burned out goiter of this character have undoubtedly suffered from a

*Dr. Hamilton is now professor and chairman of the Department of Medical Microbiology, K.U.M.C.

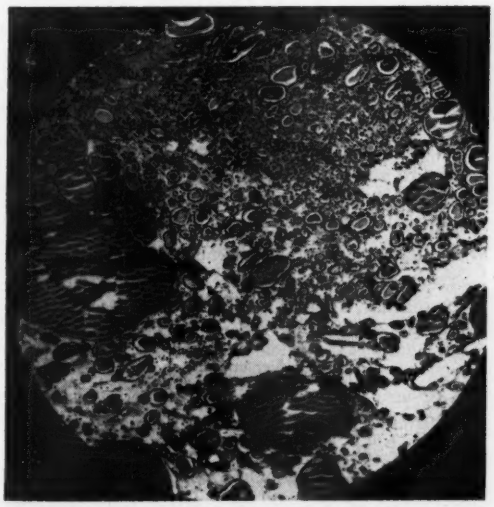

Figure 2. Thyroid (X70), illustrating macro- and micro-follicles in adenomatous nodule.

certain degree of iodopenia, and very correctly this patient was given what would appear to be massive doses.

A gram or even more of sodium iodide intravenously is sometimes necessary to bring patients out of early crisis. I have seen as much as two grams of intravenous sodium iodide given in a 24-hour period with often dramatic recovery from a so-called crisis on the part of the patient.

In examining the section from this brain, I feel that the lesion was anoxic in origin or due to a miniature embolus that was let off from the left auricle. We didn't pick up the point of occlusion in our section. The area is almost confined to the low power magnification of the scope, you might say. That is how small the lesion was, and that is probably the reason, as Stanley Cobb has shown, that this trigger mechanism of miniature focus may set off a striking cerebral manifestation which will clear in a matter of hours or even less. We find years or more later, perhaps, a tiny microscopic cyst in that focus.

Clinical Discussion

Dr. Delp: Dr. Dunham, did you think that the tracer dose might have furthered the patient's crisis?

Dr. H. H. Dunham (radiology*): No, I don't think so. This patient received 0.6 millicurie. About the smallest known therapeutic dose that I ever had anything to do with was 0.7 of a millicurie. We don't know anything about this patient's uptake, whether she took up three per cent or 90 per cent of what was given. So without that we have nothing on which to base any judgment.

But suppose she had taken up 50 per cent of it, which would have been 0.3 millicurie. That is not more than 0.1 of any kind of therapeutic dose given and probably around a 15th or a 20th of a great many of the therapeutic doses that are given. It isn't impossible that it could, but it certainly sounds a little far-fetched to me.

Dr. Delp: Dr. Harsha, have you seen any patients with tracer doses that seem to have any excitability afterward?

Dr. William Harsha (surgery resident*): No, sir. The last two years I have had contact with 116 patients with tracer doses, not a large series. None of those had any excitability afterward that we could tell. On this particular patient, we did get some studies before she expired. She retained 0.3 of one per cent of the tracer iodine.

There are two or three patients reported who complained of increased excitability. There are two cases reported that I have heard of. One was treated with 1,020 equivalent roentgens to the thyroid gland. Two days later the patient developed increased excitability. Another one who got 6,500 r. to her gland with radioiodine went into a frank crisis and responded to intravenous iodine.

Dr. Delp: Dr. Friesen, is this case of any interest to you? We would like to think that the surgeons are the only ones who treat thyroid crisis.

Dr. Stanley Friesen (surgery): Thyroid crisis is seen much less frequently than in the past. This is primarily due to the fact that the internist and endocrinologists have more completely prepared these cases for surgery.

Dr. Delp: I think unquestionably, as Dr. Berry stated, that this patient had been in crisis for several days before being sent here. I would, however, not have you minimize the possibility that the trip may have precipitated or aggravated the storm, for such is possible.

Innumerable individuals, including myself, examined this patient several times within the hour or two after she got into the hospital at 3:00 in the afternoon. That in itself will precipitate a storm in some people. Massaging the thyroid gland in an individual extremely toxic might do the same thing. I think we made an error in management in not immediately starting her on intravenous iodine. I question just how much good it might have done. It had been planned that she receive radioiodine, and it was necessary for us to find out something about her probable uptake before it was given. Consequently we procrastinated almost 18 hours in treating the patient. When we did attempt to treat her, we couldn't get propylthiouracil into the patient. We even had extreme difficulty in giving the iodine intravenously.

There is good evidence to show that whenever radioiodine is given to a large series of patients, quite a few develop storms after the radioiodine just as they do following surgery. However, I am quite willing to admit that this infinitesimal tracer dose didn't have any effect although, at the moment, Dr. Jenson and I thought this patient was more excited. We think we have seen one other following a tracer dose who was considerably more excited the following day, about 12 hours after the administration of the dosage.

Summary

A 69-year-old female with a two year old history of recurrent hyperthyroidism, hypertension, and one cerebrovascular accident was electively chosen for treatment with radioiodine. Before a therapeutic dose of this agent could be given, a fullblown thyroid storm developed and the patient expired.

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*Dr. Harsha is now in the private practice of surgery, Lawrence, Kansas.

The clinical picture of thyroid crisis is seldom seen now because of greater ease in preparation of patients for surgery with effective anti-thyroid drugs. Medical ablation of the thyroid by radio-iodine entails a survey of the suitability of the patient and then withholding of iodine and other anti-thyroid substances in order to determine the probable uptake as well as to enhance the therapeutic dose pickup. Couple this necessary withholding of treatment with other delays and emotional trauma to the patient, and there is the proper setting for a "medical thyroid crisis" rather than a post-surgical thyroid storm.

A thyroid crisis may follow administration of radioactive iodine in therapeutic doses. Whether the small tracer dose might precipitate such in the precariously toxic patient is questionable. The syndrome itself remains so poorly understood as to warrant no further conjectural assertions.

COUNTY SOCIETIES

The September meeting of the Cowley County Society was held in Winfield. Dr. J. Thomas Grayston, of the U. S. Public Health Service, University of Kansas Medical Center, spoke on "Histoplasmosis —Diagnosis and Treatment." Dr. Robert E. Pfuetze, Topeka, was a guest.

* * *

Dr. Robert D. Dripps, professor of anesthesiology at the University of Pennsylvania, was guest speaker at a meeting of the Sedgwick County Society held at the Allis Hotel, Wichita, October 14.

* * *

The Mid-West Kansas Medical Society met October 21 at the Town and Country Club in Lyons. Forty-two doctors from Rice, Reno, Stafford, Ellsworth, Barton, Rush and Pawnee Counties and one senior medical student attended. Dr. David Wall of Wichita spoke on "Problems of the Schizophrenic as Related to the General Practitioner." The next meeting of the group will be held in December with members of the Stafford County Society as hosts.

* * *

A meeting of the Shawnee County Society was held October 6 in Topeka with Dr. Joe Parker, Oklahoma City, as speaker. His subject was "Intestinal Obstructions." During the business session it was announced that the society will occupy offices in its recently purchased building at 315 West Fourth Street after November 1. Two physicians, Dr. Henry E. Altenberg and Dr. Arthur J. Revell, were elected to membership. The meeting also included a memorial to the late Dr. James D. Bowen.

* * *

The Wilson County Society held a dinner meeting in Fredonia on October 8. Speaker of the meeting was Dr. Dale W. Peters, a psychiatrist from Wichita.

* * *

Dr. and Mrs. L. G. Graves, St. John, entertained the Stafford County Medical Society and Auxiliary at a dinner meeting at their home on October 13.

* * *

A dinner meeting of the Cowley County Society was held at the Arkansas City Country Club on October 16. The members voted unanimously to close their offices on November 4, election day, after it was reported that all doctors in the state of Oklahoma will follow that practice. Guest speaker for the evening was Dr. Arthur H. Bacon of Wichita, who discussed "Spontaneous Subarachnoid Hemorrhage." Mr. James First of Topeka outlined an insurance plan open to members of the Kansas Medical Society.

* * *

A picture of all members of the Atchison County Society was published in the Atchison Globe on October 19. Twelve physicians make up the membership in the society.

Guide for Planning Offices

A guide to assist physicians in planning offices was recently published by the American Surgical Trade Association. The brochure was prepared under the direction of the Division of Hospital Facilities of the U. S. Public Health Service and incorporates suggestions from the American Medical Association, architects, and manufacturers and distributors of surgical and medical equipment.

Layouts for the various specialties are given, along with suggestions for maximum efficiency and comfort and arrangement of furniture and equipment.

Complimentary copies may be secured from the Association, 176 West Adams Street, Chicago 2, Illinois.

A majority of the active, private physicians in the United States belong to the Republican Party, according to a recent report issued by *Medical Economics*. Republican doctors, they say, outnumber Democratic physicians by almost 2.5 to one. Information on which the report is issued was acquired in a survey of medical practice based on a questionnaire sent to 134,000 doctors.

About 54 per cent of the doctors replying said they were Republicans, 22 per cent reported themselves as Democrats; 24 per cent classified themselves as independents, and less than one per cent specified affiliation with minor parties.

Senior Thesis from the University of Kansas Medical School*

Patent Ductus Arteriosus: Its Diagnosis and Management

Eugene V. Conklin, M.D.**
Kansas City, Missouri

Introduction

In 1942, Keyes and Shapiro[1] estimated that there were, roughly, 20,000 persons in the United States with patent ductus arteriosus. In the same year an analysis of 60 cases of patent ductus arteriosus in adults, with regard to the life expectancy in the United States, showed a substantial decrease in life expectancy in people with patent ductus arteriosus who were alive at 17 years. As early as 1939, one year after the first successful ligation of a patent ductus by Gross and Hibbard, Bullock[2] was presenting evidence of marked relief of symptoms due to patent ductus in children after surgical ligation. This, coupled with the decreasing morbidity and mortality accompanying the recent advances in anesthesiology and thoracic surgery, makes the diagnosis of patent ductus and its differentiation from non-surgical anomalies of the heart, or other anomalies for which the patent ductus is compensatory, of increasing importance to the clinician.

This paper represents a perusal of the literature in an effort at developing some fixed pattern to be looked for in diagnosing and managing patent ductus arteriosus.

Thirty-five cases have been studied regarding EKG findings in patent ductus. These cases represent cases done at the University of Kansas Medical Center since 1947. The list, however, is not complete and does not include all the cases done. All the cases studied have had surgical intervention and, where possible, EKG studies before and after ligation.

The Effect of the Patent Ductus on Circulatory Dynamics

Normal obliteration of the ductus begins after functional closing, which takes place at a very early age and is usually complete by two months, but may be delayed six months or a year. It should be emphasized that patency in the first months of life should not be considered as an abnormality but rather as a normal variant. At birth the lungs expand and blood begins to flow through the pulmonary circuit with a resultant decrease in pressure in the pulmonary artery. During fetal life the flow of blood has been from pulmonary artery to aorta, but with the decrease in pulmonary artery pressure there is a relative increase in systemic pressure and a reversal of flow through the ductus. In the normal heart these pressures subsequently become equal and the ductus is functionally closed. This is followed by actual obliteration of the ductus.

When the ductus fails to close as the individual grows, the systemic pressure rises and the flow of blood resumes from aorta to pulmonary artery.

The blood shunted from aorta to pulmonary artery increases the work load on the left side of the heart.[27] The blood which is shunted through the pulmonary circuit is returned to the left side of the heart and consequently raises the pressure there. Furthermore, the blood shunted into the pulmonary circulation raises the pressure against which the right side of the heart must work. The greater the volume of the shunt and the greater the rise in the pulmonary pressure, the greater is the strain on the right ventricle.[3, 27]

A thorough understanding of these dynamics make the clinical picture of uncomplicated patent ductus fairly clear cut. Such circulatory dynamics are intimately related to the development of signs and symptoms.

Clinical Findings

Patent ductus arteriosus occurs two to three times more commonly in females than in males. In the 35 cases studied at the University of Kansas Medical Center, 87 per cent were female. This is in agreement with the literature. There is no explanation for this female predominance.

History: If the duct is large there may be considerable incapacity. There is not complete agreement in the literature on this. Some observers say that the majority of their adult cases with a positive diagnosis of uncomplicated patent ductus lead normal uninhibited lives. Bullock[2] makes the observation that it is not the pediatrician who is bothered by patent ductus arteriosus, but the cardiologist who cares for the patient in later life. (Reference to the complications of the patent ductus will be made later.) There is rarely a history of cyanosis, but as Maude Abbott[4] has pointed out there are cases wherein pulmonary obstruction, as in crying, coughing, etc., raises the pressure in the pulmonary circulation, causing a temporary reversal of flow through the patent ductus with a transient cyanosis. Nowhere did we find evidence that these people were proved to have frequent pulmonary infections. Taussig[3] states that if the ductus is large enough, dyspnea and palpitation may be a sign. Of Bullock's[2] 11 patients, eight had marked exertional dyspnea and palpitation.

*This is one of 11 senior theses selected for publication by the Editorial Board from a group of 15 judged the best by the faculty of the University of Kansas School of Medicine.

**Thesis written while Dr. Conklin was a senior student at the University of Kansas Medical Center. He is now interning at St. Mary's Hospital, Kansas City, Missouri.

Levine[5] reports a common finding is precordial pain. This pain is not truly anginal in nature. It was generally localized in the left breast or apical region and was either stabbing in nature or a dull ache.

Physical Examination: Usually the patient is of the tall, slender, pale type, but Abbott[4] points out that this is not always true; the individual may be short, stocky, and ruddy complexioned. Shapiro[19] reported 62 patients, of whom 23 had stunted growth. Clubbing of the fingers probably never occurs as a result of uncomplicated patent ductus arteriosus. Cyanosis may be seen but as an exception rather than due to a transitory reversal of flow through the ductus. The pulse pressure is usually high and may be increased with exercise, which usually produces a further lowering of an already low diastolic pressure. (This exercise test has been perfected by Bohn and is described in the discussion of reference 19.) Occasionally, the pulse pressure is high enough to produce the typical Corrigan pulse and a conspicuous capillary pulse in the nail beds. Bullock et al[2] reported five cases with pistol shot sound over the femoral artery which was increased with exercise.

Perhaps the most characteristic physical finding is the so-called "machinery murmur."

The murmur, as described by Taussig,[3] is of a "harsh, rasping quality and is continuous throughout systole and diastole. Usually the murmur has a systolic accentuation. It is said to be best heard to the left of the cardiac border beneath the clavicle in the second interspace. The systolic element of the murmur is ordinarily transmitted to the vessels of the neck and is usually clearly audible high in the interscapular region posteriorly. Almost invariably the systolic element is audible over the entire precordium. Indeed, the systolic murmur may be loudest in the third left interspace close to the sternum and be transmitted to the axilla. Moreover the diastolic element may be heard along the left sternal border. The murmur is usually louder in the recumbent than in the erect position."

She explains the development of the murmur as depending on the difference between the two pressures. In the infant the systemic pressure is low and the difference between the pressures is low. Until the systemic pressure rises, with growth, to the point at which the systemic diastolic pressure is higher than the pulmonary diastolic pressure, there is only a systolic element to the murmur. When blood flows through the patent ductus during both systole and diastole, one hears the typical continuous murmur.

It is important that the physician recognize that, at certain times and under certain dynamic situations, an anatomically patent ductus may be functionally closed and result in no murmur at all. This is particularly true in infants and in persons with pulmonary disease resulting in elevated pulmonary pressure or in cardiac failure.

That the typical continuous murmur may not be present in all cases has been pointed out by Burchell.[6] Meyers et al[7] have presented two cases of surgically proved patent ductus with an absence of the diastolic component of the murmur. Both these cases were shown by cardiac catheterization to have markedly elevated pulmonary diastolic pressure.

Levine[5] in studying 37 cases of confirmed patent ductus used a classification of the murmur from one to six. In 25 of these cases the systolic murmur was of an average intensity of four. In 21 of the cases the diastolic component was average grade 3.1. In only one case was the diastolic murmur so faint as to be listed as grade 1. He reported the murmur generally loudest at the pulmonary area and when very loud was widely distributed and heard through the back of the chest and at times down the left arm. He points out that one must not rely too heavily upon the murmur heard in the posterior chest as a sign of coarctation. He reports an apical systolic murmur of about grade 2 in all cases. He also mentions four cases with a mid diastolic murmur at the apex, unlike the diastolic murmur at the pulmonic area.

Ravin and Darley[8] report that in nine of 21 cases of patent ductus arteriosus an apical diastolic murmur similar to that of mitral stenosis was present. Five of these nine patients were operated on. One was shown to have a rheumatic mitral stenosis, one died and a normal value was found. In three the apical diastolic murmur disappeared after ligation of the patent ductus. They felt that this murmur, added to other symptoms of cardiac embarrassment, was a sign the patient was adjusting poorly. Three factors in production of the murmur were suggested: enlargement of the left ventricle cavity; increased speed of blood flow through the mitral valve; and increased tendency in children for the flow of blood into the ventricle during diastole to produce sound. Gross[25] states that the typical murmur occurs in 97-98 per cent of the patent ductus cases and the diagnosis should probably not be made in its absence.

Schnitker[11] points out that with elevation of pulmonary pressure the second pulmonary sound will be accentuated. The accentuation of this second pulmonary sound has been reported to be absent following surgical ligation and/or division of the patent ductus.

In regard to differential diagnosis of the patent ductus, the murmur plays an important role. Taussig[3] has listed and differentiated the most important conditions which may produce a similar murmur.

The venous hum has a diastolic accentuation, is seldom heard more prominently to the left of the sternum, is frequently heard better in the supraclavicular region, and has a characteristic change with changing of position of the head and neck.

In rare instances the murmur of severe anemia may have a diastolic component and may need to be differentiated from patent ductus. It has been hypothesized that glandular pressure producing pressure on the pulmonary artery might produce a murmur similar to patent ductus, but this seems unlikely.

Rheumatic heart disease with both mitral and aortic insufficiency is occasionally confused with patent ductus. In rheumatic fever the systolic murmur is always maximal at the apex and is transmitted to the axilla. This is in contrast to the systolic murmur of patent ductus.

The rupture of the sinus of Valsalva into the right ventricle may be confused with patent ductus. However, this murmur is reported to be lower down and more superficial than that of patent ductus. Taussig believes the systolic component is not as intense as in a patent ductus.

The rare case of malformation of the aortic or pulmonary valves with resultant insufficiency may be confused with patent ductus, but in these the murmur would be expected to be heard from infancy on in all cases.

Gross[25] reports 10 cases in which a high interventricular septal defect left the medial cusp of the aortic valve incompletely supported, allowing occasional aortic regurgitation with a to-and-fro murmur requiring distinction from patent ductus.

Postoperatively Levine[5] reports that a slight pulmonic systolic murmur, grade 1-2, may persist for a considerable time after successful division of the ductus. This may disappear within one or two weeks or may persist after 15 months. He suggests that this may be due to a continued dilatation of the pulmonary artery and may have the same debatable significance ascribed to other inconsequential or functional basal murmurs. The persistence of a basal systolic and diastolic murmur is interpreted by Levine as due to one of several reasons: the presence of bacterial aortic endocarditis or an additional anatomic lesion such as coarctation of the aorta or some other congenital lesion. It is interesting to note that in the 37 cases studied by Levine, only those with subacute bacterial endocarditis of the aortic valve had a diastolic murmur after surgery.

In 21 of Levine's 37 cases, a definite palpable thrill was felt.[5] The thrill is ordinarily felt high in the second left interspace beneath the clavicle and is more pronounced in the recumbent position. In cases with a very loud murmur the thrill may be palpable over most of the precordium and above the clavicle. The thrill is reported to be absent in all cases after surgery.[2]

Roentgenological Findings

There are no absolutely unequivocal findings in all cases of patent ductus. The heart may appear of normal contour and size, but is usually said to be enlarged slightly. Twenty-two of Shapiro's 62 cases had no enlargement radiographically.

The most commonly described malformation is the accentuation of the second curve to the left of the sternum, the so-called "Cap of Zinn."[3] The hilar vessels are frequently slightly enlarged. Pulsations along the contour of the heart are rather vigorous, especially around the pulmonary arch and aortic knob. Evidence of calcification near the caudal aspect of the aortic arch in young persons should be looked upon as confirmatory evidence of a patent ductus.[9] Some authors make no mention of the hilar dance, but patent ductus is usually considered as one of the conditions producing this sign. No direct relationship exists between clinical signs and prominence of the pulmonary conus.[9]

According to Roesler,[9] the roentgenological differential diagnosis must include thyrotoxicosis and stenosis of the pulmonary orifice with post-stenotic dilitation of the artery. Also the interatrial septal defect is, in general, characterized by a much larger heart, absence or smallness of the aortic knob and always discloses very large intropulmonary vessels. Diffuse obliterative endarteritis of the lesser circulation has a similar appearance except that the aortic knob is of normal size: Patent ductus alone, rarely if ever, leads to enormous cardiac enlargement. The presence of a very large trunk and branches occurs only in combination with and complication by aneurysmal formation.

Donovan et al[21] studied 50 cases pre- and postoperatively. His pre-operative data is essentially the same as given above. Post-operatively he noted reduction of ventricular pulsation to normal, the pulmonary artery was no longer enlarged or pulsating, the hilar dance absent, and the left auricle either reduced in size or normal. He noted that contrary to possible expectation, there is seldom a marked decrease in the transverse diameter of the heart on post-operative roentgenograms. He observed, however, that there was evidence that led them to believe that accurate measurement of heart volume would probably show a smaller heart after operation than can relatively be demonstrated by roentgenograms. He states that children seem to "grow up" to the larger heart, and examination one to two years later shows the heart to be normal or near normal size for the larger thoracic cage resulting from growth.

Recently angiocardiography has come into use in

diagnosing patent ductus. Steinberg[20] summarized the angiocardiographic findings in isolated patent ductus as follows: "1. A distinct dilatation of the descending aorta just beyond the isthmus which varies in size and shape from a localized bulge to a uniformly dilated segment. The appearance may be due either to the infundibulum of the patent ductus or perhaps in some cases to a traction aneurysm of the aorta. 2. An elevation of the main and pulmonary arteries, the appearance suggesting that they are drawn toward the isthmus of the aorta. 3. Moderate to marked dilatation of the pulmonary artery usually was found. It was absent in 25 per cent of the cases. 4. Varying degrees of left ventricular dilatation. In 27 cases of patent ductus (12 of which were confirmed at operation), 26 showed the aortic abnormality described above."

Dotter and Steinberg,[22] in a recent summary of angiocardiographic findings in patent ductus, added to those mentioned above the following persistent opacification of the pulmonary arteries at the time of aortic filling; a defect in the column of contrast substance within and at the time of filling of the left pulmonary artery caused by a jet of non-opacified blood issuing from the ductus. Rarely, opacification of the ductus itself may be seen.

They state that all of the signs mentioned have been absent in proved cases of patent ductus.

Retrograde aortography has been shown to demonstrate anatomy of the patent ductus with clarity, but according to Dotter and Steinberg it is not recommended as a routine procedure.

In 1950, Keeler[10] evaluated the conventional findings in angiocardiography of the patent ductus both before and after ligation and drew the following conclusions: "The sequence of early filling of the left pulmonary artery, followed by emptying and then refilling at a time when the left ventricle and aorta are filled with opaque medium, presents proof of a communication between aorta and left pulmonary artery which is almost certainly due to a patent ductus. This sign disappeared after ligation, thus proving its relation to the patency of the ductus in this instance. This sequence can only be shown if the bolus technique is used, i.e. a small quantity, 20 milliliters of diodane, rapidly injected so that the right side of the heart is emptied before the left is filled.

"The saucer-shaped dilatation of the aorta at the site of the patent ductus is very suggestive, but evidently does not supply diagnostic proof of patency of the ductus, since it was larger and more clearly demonstrated after the ligation. Such enlargement has been visualized in 75 per cent of the cases with patent ductus."[10]

Angiocardiography is ordinarily not done routinely in diagnosis of patent ductus, but in difficult cases it may be of great value in establishing a correct pre-operative diagnosis.

The Electrocardiogram

It is generally agreed by most observers that there are no changes in the EKG typical of the patent ductus. Indeed many authors report the EKG in patent ductus as being normal in the majority of patients.[3, 5, 11, 12]

A review of the dynamics of the patent ductus shows what Keyes and Shapiro[1] reported in their study of patent ductus in adults. Hypertrophy of both ventricles eventually occurs, and therefore a relative balance is usually maintained with neither an undue left or right ventricle preponderance pattern appearing. It has been stated that the absence of well marked right axis deviation can be an important feature in differentiating clinically between patent ductus and pulmonary stenosis. It is important that this identification not be taken too literally because, as has been pointed out by many observers,[12, 14] a case of proved uncompensated patent ductus with some degree of right axis deviation is not rare.

If one studies the precordial patterns of those cases showing standard limb lead evidence of right axis deviation, one will observe that the right axis is probably due to a vertical position of the heart rather than actual right ventricular hypertrophy.

It is important also to remember that normal right axis deviation and precordial evidence of right ventricular hypertrophy are seen in the EKG of the infant.[15, 16]

As has been shown by Levine[17] in cases of long standing with associated pulmonary arteriolar sclerosis, actual right ventricular hypertrophy may be seen.

In this study the EKG's of 38 proved cases of patent ductus operated at the University of Kansas Medical Center were examined with special regard to frontal plane angle of the QRS, angle of the T wave and the QRS-T wave angle. In determining these angles, the triaxial reference system of measurement as described in the Burch and Winsor[18] text was used.

The cases ranged from 19 months to 26 years. Of the 38 cases, 32 were female, only one died, one was seen in the clinic with a diagnosis of patent ductus and her EKG was recorded through and after her pregnancy. It is interesting to note that a reported right heart strain during pregnancy seemed to disappear after delivery and an essentially normal EKG was reported.

Five of the cases, numbers 4, 10, 12, 15, 28, showed angles of the QRS of 90° or over. None were over 93°. In one, number 28, there was

TABLE I

	Patient	*Age*	*Sex*	*Angle of the QRS*	*Angle of the T*	*QRS—T*	*Original Interpretation*
1.	P. M.	19 mo.	F	56	79	—23	Abnormal rotation by P and T waves and V_1. Sinus tachycardia.
2.	S. B.	22 mo.	F	68	58	+10	The lack of left ventricular deviation at 22 months may indicate left ventricular enlargement.
	"	2 yrs.	F	80	31	+49	Diphasic T in Lead III.
3.	S. L.	2 yrs.	F	90	90	0	Unusually large QRS complexes with ventricular enlargement either left or both.
4.	S. B.	3 yrs.	F	30	43	—13	T wave diphasic in CR_1, up in others.
5.	S.	3 yrs.	F	39	62	—23	
6.	C. B.	3 yrs.	F	81	72	+9	
	"	"	"	73	—2	+75	
7.	R. B.	3 yrs.	M	15	27	—12	
8.	J. H.	4 yrs.	F	90	59	+31	
9.	L. S.	4½ yrs.	M	60	52	—8	EKG suggestive of left heart strain.
10.	L. B.	4 yrs.	F	92	61	+31	
11.	A. B.	5 yrs.	F	49	59	—10	
12.	S. A.	5 yrs.	F	80	43	+37	
13.	D. J.	6 yrs.	M	90	65	+25	Large deflection throughout compatible with left or biventricular enlargement.
14.	K. S.	6 yrs.	F	32	76	—44	
15.	N. L.	8 yrs.	F	70	45	+25	
	"	"	"	59	—15	+74	With tachycardia.
16.	J. P.	8 yrs.	F	30	50	—20	Pre-operative.
	"	"	"	24	—10	+34	Day of operation.
	"	"	"	43	48	—5	Post-operative.
17.	P. B.	8 yrs.	F	68	81	—13	High T waves.
18.	L. B.	8 yrs.	F	83	50	+33	
19.	B. C.	8 yrs.	F	57	79	—22	
20.	S. S.	10 yrs.	F	75	56	+19	
21.	C. S.	10 yrs.	F	55	—41	+96	Post-operative evidence of myocardial changes.
	"	"	"	56	—30	+86	Normal pre-operative.
22.	C. H.	11 yrs.	F	93	76	—17	EKG evidence of right heart strain.
23.	K. W.	11 yrs.	F	79	73	+6	
24.	G. M.	13 yrs.	F	43	45	—2	Post-operative hypertensive. Digitalis effect seen in EKG.
25.	A. T.	13 yrs.	F	62	38	+24	
	"	"	"	74	50	+24	

TABLE I (Continued)

	Patient	Age	Sex	Angle of the QRS	Angle of the T	QRS—T	Original Interpretation
26.	G. B.	14 yrs.	F	16	30	—14	
27.	M. G.	14 yrs.	F	60	60	0	
28.	J. P.	15 yrs.	M	70	61	+9	Delay in intrinsicoid deflection in V_6, evidence of left ventricular enlargement.
29.	D. N.	18 yrs.	F	47	14	+33	Post-operative T wave change.
30.	B. C.	18 yrs.	F	75	80	—5	Large complexes.
	"	"	"	66	78	—12	
	"	"	"	69	—47	+116	Interventricular conduction defect. T wave inverted due to pericarditis or myocardial injury.
31.	N.	20 yrs.	F	37	38	—1	10/13/48. Lavorotation with possible right heart strain. Was pregnant.
	"	"	"	55	72	—17	11/8/48. Minimal myocardial change. Right heart strain.
	"	"	"	57	48	+9	12/30/48. Essentially normal EKG.
	"	"	"	61	2	+59	1/17/49.
	"	"	"	55	60	—5	1/20/49. Operated with ligation of patent ductus. Essentially normal EKG.
32.	D. C.	22 yrs.	F	71	84	—13	
33.	D. S.	22 yrs.	M	62	52	+10	
	"	"	"	47	16	+31	Day of operation.
	"	"	"	59	—118	+177	Heart said to be in right chest.
34.	J. R.	22 yrs.	F	—18	71	+89	Question of mitral stenosis. Heart strain and enlargement.
35.	B. D.	23 yrs.	M	48	67	—19	First degree AV block.
	"	"	"	30	85	—55	Large S wave over right chest may mean left ventricular hypertrophy. Large P waves may mean auricular strain.
	"	"	"	32	66	—34	First degree AV block.
36.	M. M.	26 yrs.	F	40	58	—18	Left or biventricular enlargement.
37.	E. N.	27 yrs.	F	42	50	—18	Evidence of right ventricular hypertrophy.
	"	"	"	42	—2	+44	

evidence of right heart strain. In numbers 10 and 12 no comment was made regarding precordial findings. In numbers 4 and 15 there was precordial evidence, as interpreted by the person originally reading the EKG, of left or biventricular hypertrophy. It is important to note that many of the EKG's examined were taken with incomplete chest lead recordings, and the interpretation might have been altered if the full six leads had been available. It is interesting that all five of the cases with angles of the QRS of 90° or over were under 12 years of age. None of the cases showed frontal plane angles of the QRS evidence of left axis deviation. However, two showed precordial evidence of left ventricular hypertrophy and one showed left ventricular strain.

It was only in cases in which there was some other pathology that the angle of the T wave was abnormal or that there was a wide QRS-T angle.

Table I illustrates the cases studied with side notes taken from the original interpretation of the EKG. Our findings were in agreement with Oglesby et al[14] regarding T and RS-T segment changes. That is, there were no characteristic changes. No characteristic arrhythmias were noted.

The conclusion to be drawn from the data gathered in the study is that, as has been shown by other observers, there is no characteristic change in the EKG in the uncomplicated patent ductus. Occasionally a slight right axis deviation may be seen. The presence of a slight right axis deviation calls for investigation with unipolar and precordial leads to determine the electrical position of the heart more accurately. The three cases with signs of right ventricular hypertrophy or strain in proved cases of uncomplicated patent ductus may indicate that one should use caution in using signs of right ventricular hypertrophy and/or strain in differentiating patent ductus from pulmonary stenosis. In most cases, however, the evidence of right hypertrophy would be much greater in pulmonary stenosis, and any case presenting EKG evidence of marked right axis deviation probably is not an isolated patent ductus arteriosus. One may also conclude that while widening of the QRS—T angle may be helpful in interpretation, there is no characteristic widening of this angle in uncomplicated patent ductus.

Cardiac Catheterization

Himmelstein and Cournand have recently made an evaluation of cardiac catheterization in congenital heart disease.

The visualization of the patent ductus arteriosus by actually passing the catheter from the pulmonary artery through the patent ductus into the thoracic aorta is mentioned as one of the most helpful findings and probably the only pathognomonic finding in patent ductus arteriosus. The sampling of blood from the pulmonary artery of a higher oxygen content than the samples taken from the right heart, thus indicating a left to right shunt, is of help but cannot differentiate an aortic septal defect from patent ductus arteriosus. This finding may be confused with a high interventricular septal defect with persistence of laminar flow in the pulmonary artery, or a combination of patent ductus with interventricular septal defect if there is a functional incompetence of the pulmonary valve during diastole with leakage of blood with an increased oxygen content back into the right heart. In case of increased pulmonary pressure, the reversal of flow through the patent ductus (as described earlier in this paper) may be demonstrated in patent ductus by the demonstration of blood of a lowered oxygen saturation in the femoral arteries with a normal O_2 saturation in the brachial arteries. Burchell et al[24] reported decreased O_2 saturation in femoral vessels in a patient with patent ductus arteriosus and associated coarctation of the aorta.

The mortality of cardiac catheterization is reported to be one-tenth of one per cent from figures collected in three laboratories where nearly 3,000 catheterizations had been performed.[23]

The patent ductus is ordinarily diagnosed without the necessity of catheterization, but in difficult cases it may be necessary to use this method to insure a correct pre-operative diagnosis.

Himmelstein and Cournand state that catheterization in congenital heart disease should be reserved for those cases in which the diagnosis, "after careful and expert clinical examination is still in doubt or in which a better documented diagnosis may be of aid in reaching a decision as to treatment."

Indications for Surgery

In 1942 Keyes and Shapiro[1] reported subacute endarteritis as the cause of death in 40 per cent of 57 cases over 17 years of age studied. Twenty-eight per cent died of congestive failure. Rupture of a pulmonary aneurysm, an occasional complication of patent ductus, accounted for 3.3 per cent. They reported the life expectancy, in persons alive at 17 years with a patent ductus, to be about 25 years. This was about one-half the life expectancy in 1942. They suggested that the operation was warranted even in the absence of signs of decreasing adjustments to the defect.

In 1947 Benn[26] in England gave as the indications for surgical treatment of the patent ductus arteriosus: 1. bacterial endocarditis; 2. recovered bacterial endocarditis; 3. cardiac embarrassment, or poor physique. This is essentially a list of the complications of patent ductus arteriosus. He did not believe that the surgical risks were low enough to warrant operation as a prophylactic measure.

Gross[25] believes 25 per cent of the cases he has observed suffered superimposed bacterial endarteritis, usually due to streptococcus viridans. Since the advent of chemotherapy there has been a tendency to treat the endarteritis chemotherapeutically until asymptomatic, without further consideration of surgery. It is important that these people be afforded the surgical treatment to protect their already overworked hearts from further damage or recurrence.

Bacterial endarteritis is rare before four years of age. Gross believes now that the patient should be intensively treated with chemotherapy and antibiotics for a reasonable length of time. If the blood stream cannot be sterilized, then operation should be added during the infective stage. Following sterilization of the blood by drugs (possible in four-fifths of the cases) operation is delayed for several months. Gross states that in the past 12 years, the majority of his patients have been operated on as a prophylactic measure and that none of the operated cases have subsequently developed endarteritis.

Chemotherapy and antibiotics have not altered the effect the patent ductus has on the circulatory dynamics. The existence of a patent ductus into adulthood frequently leads to a state of decompensation. The degree of decompensation depends upon the size of the patency. In those with very slight openings, the only symptoms may be a generalized loss of energy. In those with large openings, there may be frank decompensation. Decompensation is not entirely restricted to adults but is rare in children. Eppenger, Burwell and Gross[27] have shown that in large patent ducti, 45-75 per cent of all the blood pumped by the left ventricle passed through the patent ductus. Adjustment for this is made by an increase in the output of the left ventricle. If this is not sufficient to completely compensate for the leak, there may be a diminution of the blood flow to the periphery.

They have shown that surgical closure improved the peripheral circulation in some patients and reduced the work load in all patients. Reference has already been made to the reduction in the size of the heart following surgery, and to the x-ray findings post-operatively. It is generally concluded that if strain has gone too long, surgery does not afford nearly the post-operative changes seen in cases operated on before the decompensation and strain have created permanent damage.

Bullock[2] and others have shown evidence that growth and development in children are retarded in patients with a patent ductus. Adams[28] studied 61 children with patent ductus, using the Wetzel guide. His conclusions were that pre-operatively more children with patent ductus were of a physique below par and that more had a reduced speed of growth. He showed that post-operatively more children had a gain in physique and an increase in speed of growth than would be expected. In instances in which surgery was performed late in childhood, loss in physique or speed of growth was frequently not regained.

According to Gross,[22] in the matter of mortality rates, if the mortality rate at the institution considering the prophylactic use of the procedure is high, then perhaps it is not warranted.

There are few contraindications for surgery. If the patent ductus is very large and of very long standing, it should not be divided because of the danger of hemorrhage and not be ligated because of the subsequent erosion and hemorrhage. This occurred in three of Gross' 412 cases. Gross does not recommend the procedure in the elderly asymptomatic patient. In a patient with typical patent ductus murmur but with cyanosis, the duct should not be interrupted as it probably is compensating for some other defect. Gross states rheumatic mitral stenosis is no contraindication but rather an indication. He does not believe interventricular septal defect or interauricular septal defect is a contraindication, and adds that closure of the patent ductus may help in that it reduces the work load on the heart. Contraindications are chiefly limited to those conditions in which the patent ductus is compensating for other cardiac anomalies.

The operation of choice now seems to be the complete division of the patent ductus arteriosus. The suture-ligation technique of Blalock[29] may be used. Gross has now performed 396 complete divisions without the loss of a single patient from hemorrhage at the time of operation or subsequently.

In 1947 Shapiro,[31] in an analysis of 643 patients, operated by 46 surgeons, showed that 101 were infected, 525 uninfected; 626 were found at surgery to have patent ductus arteriosus, 17 were misdiagnosed. In ligation of the uninfected patent ductus, the mortality rate was 4.9 per cent with 8.7 per cent resulting in recanalization. One hundred seventy-two patients with uninfected patent ductus were treated by section without a single fatality and no recanalization.

Gross[25] recommends that the procedure be carried out before the patient has reached 20 years of age, the optimum age being three or four years up to 15 or 20 years. He has operated on an 11-month-old baby who was in failure, with success. His oldest was a patient of 51 who was in failure. He explains that not only is the heart benefited by the earlier reduction of the work load, but the procedure is technically much simpler in the younger individual.

Modern methods of anesthesia, using intratracheal intubation, as well as recent advances in thoracic surgery have reduced the mortality substantially.

In a recent communication, Dr. Robert E. Gross[32] reported 550 total operations for patent ductus. All but the first 43 were complete divisions. In the last 300 cases, there were five deaths from all causes. In the last 100 patients there were two fatalities.

Dr. Dwight C. McGoon,[33] reporting from Blalock's service, reported two deaths in the past 100 operations for patent ductus, and these two were patients with additional anatomical anomalies.

Dr. Willis J. Potts[34] reported on 178 cases, the last 150 of whom had complete division without a single mortality.

Conclusion

It is to be concluded from the above that the majority of patent ductus arteriosus cases can be diagnosed by the stethoscope, but in difficult or atypical cases the x-ray, EKG and cardiac catheterization may be of help.

The indications in the light of reduced mortality and the evidence that the patent ductus increases the work load on the heart and decreases the life expectancy, are that surgical treatment probably is indicated as a prophylactic measure. The other indications for operation are definite. Surgery should be performed at an age before which the vessels and patent ductus become so deeply fixed the operative technique is made more difficult, or before irreversible damage is done to the heart.

Summary

1. A consideration of the problem of the patent ductus arteriosus and the increasing importance of a correct pre-operative diagnosis in the light of decreasing surgical mortality is made.

2. The circulatory dynamics of the patent ductus arteriosus are presented.

3. The clinical picture of the patent ductus arteriosus with particular regard to diagnosis is presented. This is broken down to consider the history and physical findings.

4. The roentgenological and angiocardiographic findings and their place in diagnosis are discussed.

5. The EKG findings are discussed with a presentation and analysis of 38 cases operated on at the University of Kansas Medical Center.

6. The indications for, technique of, mortality and results of surgery for patent ductus arteriosus are presented.

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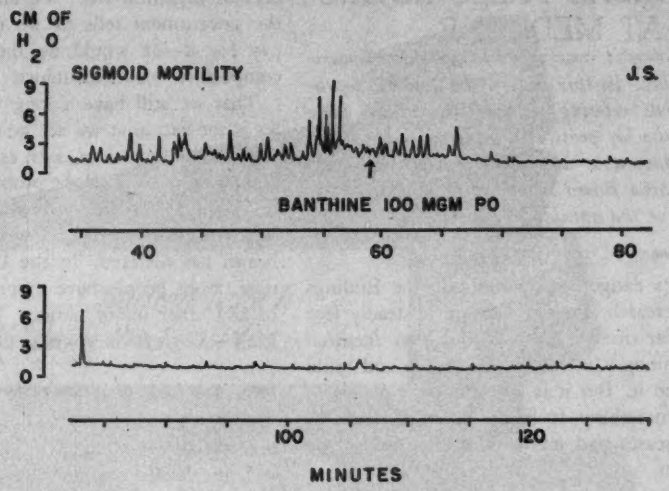
"By 1992, most of the usual contagious diseases of childhood should be a thing of the past," said Dr. Martha M. Eliot, chief of the Children's Bureau, Federal Security Agency, recently. She reported that some childhood diseases have become "out of date" within the past 40 years. These include whooping cough, scarlet fever, smallpox and typhoid fever. During the next 40 years, she said, such diseases as tuberculosis, pneumonia, poliomyelitis and rheumatic fever should be a thing of the past.

In 1912, when the Bureau was created, 100 babies died during their first year of life for every 1,000 born alive. By 1950 this rate had been cut 71 per cent, to 29 baby deaths per 1,000 born alive.



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RESEARCH IN THE SERVICE OF MEDICINE **SEARLE**

THE KANSAS PRESS LOOKS AT MEDICINE

Editor's Note: In this section the Journal reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

Medical Warning

It is always dangerous to publicize the findings of medical research. People who are in deadly fear of a particular disease grasp at the least mention of progress along a certain research line and build false hopes on it. But it is important for people to know that something is being done to find the causes of diseases and methods of preventing and treating them.

It may be that the first step toward producing vaccine which would offer immunity against poliomyelitis may have been taken by a scientist who succeeded in growing a polio virus in chicken eggs. He has made several experiments with vaccines using monkeys as subjects and the experiments seem to indicate that he is on the right track. He emphasizes, however, that he may still be a long way from a vaccine which can guarantee immunity with safety.

Research in the laboratories will go on and the present methods of treatment of the disease will be used and improved as new knowledge is gained. Beating a disease is a long, hard job. It is well for the public to have faith that answers will be found in time but undue optimism can only result in misery.—*Abilene Reflector-Chronicle, October 19, 1952.*

* * *

More Hospital Care

According to an American Medical Association report, American hospital service last year reached an all-time high. In 6,637 registered hospitals, 18,237,118 patients were admitted—one every 1.7 seconds.

There was also a very marked gain in extending accident and health protection among the people, as measured by the accurate yardstick of premium income. This income for accident and health insurance increased almost 28 per cent over 1950. Blue Cross, Blue Shield and similar plans reported an increase of 14 per cent. Group accident and health insurance jumped nearly 41 per cent.

What is the significance of such facts as these? They show that we are making substantial and steady progress toward solving the financial problems that come with sickness and accidents. And we are doing it voluntarily, as individuals and members of organizations. We aren't doing it because the government tells us we must and taxes us to pay for it—as would be the case under Federal compulsory health insurance.

That we still have a long way to go is evident. So is the fact that we are going in the right direction. In those nations, such as England, which have attempted to solve all the problems at one fell swoop by saying, "let the government do it," medical standards have dropped alarmingly and the public health has suffered. In the United States, by contrast, more people have more and better care than in any other major nation. The record speaks for itself.—*Coffeyville Journal, July 18, 1952.*

* * *

Joker Was Boost to Socialized Medicine

Congress recently voted down a social security bill which would have increased old age benefits. A house leader charged that a "pressure campaign" conducted by the American Medical Association was responsible.

This was at once answered by the association's president, who said, "In all likelihood the increase in old age benefits would have been voted without serious opposition, if the sponsors of the legislation had presented an honest bill to achieve that purpose. Such legislation certainly would not have been opposed by the Amreican Medical Association, and will not be opposed by the AMA at any time that it is honestly presented.

"The defeat of the bill. . . was due to the fact that its sponsors sought to trick their fellow congressmen by a hidden section in the act designed to establish a legal basis on which the Federal Security Administrator could begin to exercise political control over the care of the sick and the practice of medicine. . . The bill was defeated not by AMA, but by the aroused members of congress who had discovered the duplicity of the legislation's sponsors."

The sponsors tried to slip in a joker clause which would have started us along the road to socialized medicine or government-bossed medicine. The advocates of that haven't been able to get to first base by direct, forthright methods—congress is overwhelmingly opposed to turning the practice of medicine over to the tender mercies of the bureaucrats and machine politicians. So now they are trying deception. In this instance the elderly people who receive social security checks were the victims.—*Cherryvale Republican, June 21, 1952.*

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BOOK REVIEWS

Correlative Neuroanatomy and Functional Neurology. Sixth edition. By Joseph J. McDonald and Joseph G. Chusid. Published by Lange Medical Publications, Los Altos, California. 263 pages, 177 illustrations.

The fact that this manual has gone through six editions proves its value has been accepted by medical students, beginners in neurology and physicians for handy, quick reference. It accomplishes quite well the monumental task of condensing into concise outline format the entire subject matter of neuroanatomy, neurophysiology and clinical neurology.

Its anatomical diagrams are well done, its summary charts are concise and valuable, and its text is beautifully condensed into the briefest outline form possible.

This latest edition includes revision in the fields of aphasia, headache, syncope, and muscle testing, as well as additional charts, diagrams and illustrations.

This is an excellent manual for quick reference for any physician who faces any problem related to neuroanatomy or neurology.—*W.P.W.*

* * *

The Low Fat Diet Cookbook. By Dorothy Myers Hildreth and Eugene A. Hildreth. Published by Medical Research Press, New York 17, New York. 160 pages. Price $2.95.

The basic low fat diet is explained in simple words showing the patient what to eat and how to prepare it. Between 25 and 35 grams of fat are the figures used in setting up this diet, although the fat content may vary from 10 grams on up as desired by the physician. The amount of fat in grams is given for each serving of a particular food.

The authors give a brief discussion of cholesterol in relation to fat and what part it plays in atherosclerosis. How to adjust the diet to lose or gain weight is explained also.

Many helpful hints on planning menus are given with examples showing how this may be done. However, the menus give only about 50 to 55 grams of protein a day.

The use of mineral oil as recommended on this diet is questionable since it is felt by some authorities to prevent the absorption of the fat soluble vitamins.

Borden's Starlac is the only dried skim milk suggested, but any dried skim milk on the market may be used.

The recipes are interesting and varied and offer much toward keeping the diet palatable and attractive.—*E.C.R.*

* * *

Research in Endocrinology. By August A. Werner and Associates. Published by Belleville Daily Advocate, Belleville, Illinois. 285 pages.

The book records the accomplishments, publications, lectures, and biography of Doctor Werner.

Nine research problems are briefly presented, and the studies are reported as reprints taken from the original publications.

The studies include "Hypoovarian Syndrome," "Climacteric Psychosis," "The Male Climacteric," "The Effect of Theelin Injections on Castrate Women," "Effective Clinical Dosages of Theelin in Oil," "Significance of These Experiments," "A Survey of Estrogenic Dosage," "Effect of Gonadotropic Extract of the Anterior Pituitary in Cryptorchidism," and "Growth in Children With Mongolism."—*H.W.V.*

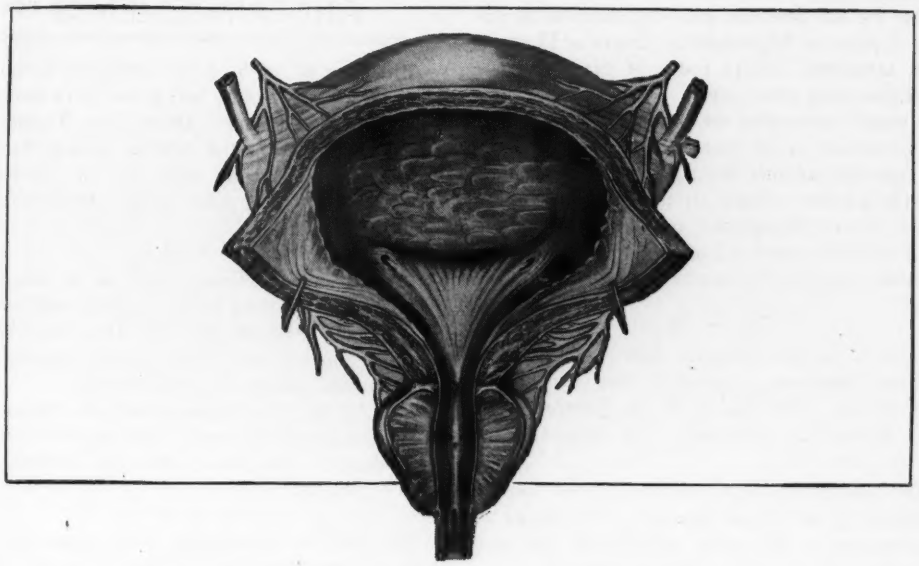
* * *

Annals of the New York Academy of Sciences, Vol. 54, Art. 6, pp. 869-1,232, edited by R. W. Minor. Entitled Viruses as Causative Agents in Cancer. Published by New York Academy of Sciences, New York City, 173 illustrations. Price $4.00.

This review is composed of 31 short papers which should prove to be of interest not only to oncologists and virologists but also to all the medical profession. The coverage is so comprehensive, yet brief, as to provide much fundamental knowledge of these fields in palatable capsule form for busy progressive physicians. Development of certain tumors and tumor-like growths in a wide variety of plants and animals, including man, is described, and the possible role of viruses in these tumors is discussed.

Koch's postulates have rarely been fulfilled, but the evidence is in many instances at least highly suggestive of viral etiology, although often it is not convincing. Pinkerton states that inclusion bodies are found in about half of the known virus diseases and, on the whole, the evidence for the occurrence of true vital inclusions in mammalian tumors is far from convincing. Such inclusions are absent in the vast majority of tumors. Electron microscope studies of known viruses and the lesions they produce are valuable.

Two groups of investigators report finding with the electron microscope particles comparable to the mammary tumor virus in human milk. These were found more frequently and in larger numbers in the milk of women with cancer or a history of cancer in the family than in women without such a history. However, these studies with the electron microscope merely serve to point out the need for ancillary methods such as ultracentrifugation, ultra-



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filtration, inactivation, immunity and transmission studies for the detection and identification of viruses. A paper by Koprowski on "Latent or Dormant Viral Infections" should prove of practical value to all practicing physicians.

It would appear that the purpose as set forth by Dr. Goldsmith in the preface should be forthcoming from this volume: that is, "It will do more than provide another volume to the already very extensive cancer bibliography; it will synthesize existing knowledge, catalyze present investigations, and stimulate many new researches and discoveries."—*H.I.F.*

* * *

Gynecologic and Obstetric Pathology with Clinical and Endocrine Relations. Third edition. By Emil Novak. Published by W. B. Saunders Company, Philadelphia. 595 pages, 630 illustrations, 19 in color. Price $10.

The third edition of Novak's well known book on pathology of the female generative tract brings the material up to date with addition of the latest knowledge of the various subjects covered.

This book can be very highly recommended to anyone interested in the subject of gynecologic and obstetric pathology.—*R.L.N.*

* * *

Synopsis of Pathology. By W. A. Anderson. Published by C. V. Mosby Company, St. Louis. 788 pages, 334 illustrations, 13 in color. Price $8.00.

This is an unusually concise, accurate, up to date informative account of the field of pathology. It is midway between the usual sterile outline and the more voluminous textbooks of pathology and should be popular to the medical student and others whose time and finances are limited and who still wish access to a satisfactory survey of the field. In fact, it is remarkable that so much information can be crowded into such a small space.

Twenty-three well selected tables are included and aid in clarifying and crystallizing the text. Occasional gaps in enumeration of recent technics occur, such as the failure to mention the periodic acid Schiff test in the evaluation of polysaccharides, but are to be expected in such a small volume.

The illustrations are numerous and generally well selected, though some of the duplicated histologic cuts appear either superfluous or obscure. However, to have over 300 satisfactory illustrations in such a small book is quite remarkable. The colored plates are good.

An excellent feature is the brief but highly discriminating bibliography that is appended at the end of each chapter. The references are well selected and obviously supplement the too brief text.

The book is hardly a stimulating text, but is loaded with dependable information.—*H.R.W.*

ANNOUNCEMENTS

A meeting of the St. Louis University School of Medicine Alumni will be held in the Onyx Room of the Brown Palace Hotel, Denver, on Wednesday, December 3, during the A.M.A. Clinical Session. Reservations should be made to the University School of Medicine, 1402 Grand Boulevard, St. Louis 4, Missouri.

* * *

The first annual clinical session of the American Academy of Obstetrics and Gynecology will be held at the Palmer House, Chicago, December 15-17. The meeting will feature six general sessions and 48 discussion groups of 40 fellows each.

The Academy was incorporated on August 14, 1951, and already has some 2,400 qualified fellows. The address is 116 South Michigan Avenue, Chicago 3, Illinois.

* * *

The 19th annual meeting of the American College of Chest Physicians will be held at the Hotel New Yorker, New York City, May 28-31, 1953. Physicians who wish to present papers should submit titles and abstracts to Dr. Arthur M. Olsen, Chairman, Committee on Scientific Program, Mayo Clinic, Rochester, Minnesota.

* * *

The National Foundation for Infantile Paralysis announces the availability of a limited number of postdoctoral clinical fellowships in physical medicine and rehabilitation to candidates who wish to become eligible for certification in that field. Fellowships will cover a period of from one to three years, and stipends are based on individual need.

Short-term fellowships, from three months to one year, are also available to physicians who wish to become better acquainted with physical medicine as it relates to their particular specialties. Such training is being offered to physicians who have completed a minimum of one-year residency in orthopedics, pediatrics, neurology or internal medicine.

Complete information may be secured from the Division of Professional Education in care of the Foundation, 120 Broadway, New York 5, New York.

The Public Health Service was recently forced to close four of its general hospitals as a result of Congressional cuts in Veterans Administration appropriations, Oscar R. Ewing, Federal Security Administrator, announced recently. Patients in the hospitals include merchant seamen, personnel of the Coast Guard, federal employees injured in line of duty, and others for whom the Service is responsible under law.

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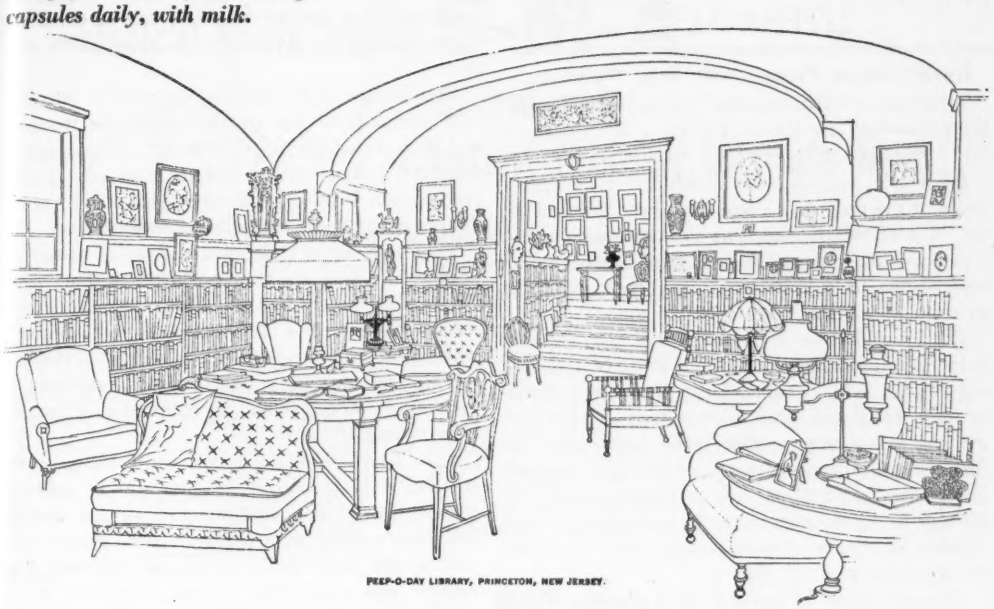

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ABSTRACTS FROM CURRENT LITERATURE

Histoplasmosis Treated with Ethyl Vanillate

Treatment of Disseminated Histoplasmosis with Ethyl Vanillate. By Amos Christie, et al, Pediatrics, 7:1, 7-18, Jan. '51.

Previously patients with disseminated histoplasmosis of the progressive type have been doomed to die. A study of the literature and the author's experience with 23 previous cases have made it quite evident that no control series was needed to make an evaluation of the effect of ethyl vanillate.

Ethyl vanillate is a by-product of the sulphite pulp manufacturing process. It is made by esterifying vanillic acid, obtained by oxidizing the lignin in the spent liquor from sulphite pulp. It is a low melting, colorless, crystalline solid which may be distilled under pressure (reduced) to give a colorless viscous oil of 99 per cent or greater purity. The oil may be supercooled below its melting point and handled as a liquid at room temperature. The agent is fungistatic or fungicidal.

The records of 12 patients with progressive disseminated histoplasmosis treated with ethyl vanillate have been reviewed. Five of these patients are alive and apparently well following treatment. This experience has not been previously reported in the literature.

This drug has a 30 to 40 per cent margin of safety which really makes it a dangerous drug for general usage.—*D.R.D.*

* * *

Adenoma of the Thyroid

Malignancy in Adenoma of the Thyroid. By Frank H. Lahey and Hugh F. Hare, J.A.M.A., 145: 10, 689-695, Mar., '51.

Except for the rare case of the microscopic diagnosis of carcinoma in hyperplastic thyroid glands, it is now quite generally accepted that the origin of cancer of the thyroid gland is in the preexisting adenoma of the gland. Credit is given to Dr. Allan Graham for his work in connection with malignancy in adenoma of the thyroid. It has not been easy to convince internists of the danger of malignant change that exists in adenomatous goiter. This has been due in part to the fact that reports on malignancy were on a general basis of all types of nodular goiters rather than on the separation of discrete from the multiple adenoma.

In 1,971 consecutive discrete adenomas, malignancy is shown to be 10.04 per cent while in 1,782 multiple adenomatous goiters malignancy is shown to be 0.62 per cent. This percentage of malignancy in discrete adenomas of the thyroid is too high to justify delaying surgical intervention against such tumors. It can, in fact, almost be said that if every discrete adenoma of the thyroid could be removed in its earliest stages, we would be able to eliminate almost entirely the occurrence of cancer of the thyroid.

This brings up the question as to what size discrete adenoma of the thyroid should be removed and if in young people, at what age? If one agrees with the authors that a discrete adenoma is true cancer, then it must be assumed that it will never disappear but will eventually increase in size.

Thus it presents a constant danger of cancerous change, and it is for this reason the authors state, "The smaller the adenoma, the greater the reason for its removal. If a child has a discrete adenoma, why expose him to this danger of cancerous change? All discrete adenomas, however small, and even in very young people should be removed as a prophylactic measure."

In a study of 428 patients with cancer of the thyroid, 136 cases revealed the tumor confined within the capsule, and resection of the discrete adenoma resulted in a five-year cure. Hence, irradiation and block dissection of the neck was done on the cases that have shown extension of the neoplasm into either the surrounding tissue or lymph glands.

The authors feel that "prophylactic early removal of the discrete adenoma of the thyroid would do much to lower, if not abolish, the occurrence of cancer of the thyroid."—*J.J.H.*

* * *

Palliative Treatment of Rheumatoid Arthritis

Cortisone Plus Insulin in the Palliative Treatment of Rheumatoid Arthritis; A Preliminary Study. By Edward Henderson, John W. Gray, Marvin Weinberg, Evelyn Merrick and Harry Seneca, Jrl. Clin. Endoc., 11:2, 119-133, Feb. '51.

Most authors are agreed that large doses of cortisone are mandatory in the successful treatment of rheumatoid arthritis. Laboratory experiments indicate that adrenocortical tissue in vitro can convert a number of 21-carbon steroids lacking an oxygen at carbon 11 to steroids having this configuration. One study indicates that insulin facilitates this process. Such considerations prompted a trial with combined cortisone and insulin therapy.

Twelve patients with typical rheumatoid arthritis of widely variable duration were treated. Four patients received for the first 10 days single injections daily of 12.5 mg. of cortisone and 20 units of regular insulin in the same syringe, for the second 10 days single daily injections of 50 mg. and 20 units in the same manner, and for the third 10 days 50 mg. and 40 units daily, divided into two doses at 9:00 a.m. and 4:00 p.m. A second group of four received 25 mg. of cortisone and 40 units of regular

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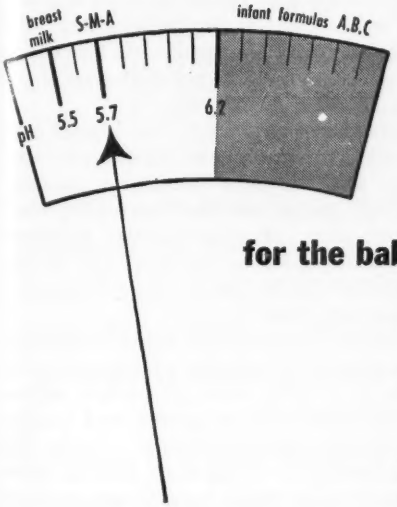

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6 *Minimal danger of perianal dermatitis and diaper rash in the new-born.*[3]

REFERENCES

1. Barbero, G.J., Runge, G., Fischer, D., Crawford, M.N., Torres, F. E., and Gyorgy, P.: J. Pediat. *40*:152 (Feb.) 1952.
2. Lichtman, H., Ginsberg, V., and Watson, J.: Proc. Soc. Exp. Biol. and Med. *74*:884 (Aug.) 1950.
3. Torres, F.E., Romans, I.B., and Wheller, J.B.: A Study of Infantile Diaper Rash. To be published.

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insulin daily, divided into two doses at 9:00 a.m. and 4:00 p.m. for 10 days, and then 50 mg. and 40 units daily given in the same manner for 20 days. The last group of four patients received 25 mg. cortisone and 40 units of regular insulin in two doses at 9:00 a.m. and 4:00 p.m. daily for 10 days, then 50 mg. and 40 units in the same manner for 10 days, then 50 mg. and 60 units for 10 days.

Results: 12.5 mg. cortisone plus 20 units of insulin had no significant effect; 25 mg. cortisone plus 40 units of insulin produced fall in sedimentation rate in six of eight cases and distinct clinical improvement in four; 50 mg. cortisone with either 20 or 40 units of insulin produced complete remission in seven cases, major improvement in four, and minor improvement in one. Increasing the insulin dose to 60 units did not appear to materially influence or improve the outcome.

Injecting insulin and cortisone together or separately seemed to make no difference.

Results with 50 mg. and 40 units are comparable to those obtained with 100 mg. or more daily when cortisone is used alone.

No significant effects on blood count, blood pressure or blood sugar could be detected.

Hypoglycemia usually occurred on the first or second day of treatment.

Comparable results could not be obtained by using protamine zinc insulin with cortisone.

Discussion: There is no reason to believe that rheumatoid arthritis results from adrenocortical insufficiency. Use of cortisone is not physiologic. It is pharmacologic, an overwhelming pharmacodynamic action.

These authors postulate that the well-known glycogenic action of cortisone induces an extraordinary and pathologic synthesis of carbohydrate at the cellular surface-boundary. Thus unidentified noxious agents, such as the etiologic factor or factors responsible for rheumatoid arthritis, become unable to provoke inflammation; they are confronted with cells somewhat indestructible for the time being. Insulin is supposed to be beneficial by making more utilizable carbohydrate material available for the action of cortisone upon cellular structure.—*E.J.R.*

Most people resist education and only the few seek it. Educators tell us there are three periods in life when the individual is very ready to learn: (1) the little child who is eager to learn everything; (2) the young mother who wants to learn how to care for her child; and (3) the person who is ill and is very anxious to learn how to regain his health. The patient is a member of a community; he is anxious to learn how to get well and stay well, but he cannot learn without a teacher. The logical persons to reinforce the formal instruction which the patient receives, whether that instruction be given by the doctor or a nurse, are the members of the nursing staff in their daily contacts with the patient.—*Aileen Flett, R.N., Medical Papers of the Annual Meeting of the Canadian Tuberculosis Association, May, 1951.*

Study of Physical Impairments

An actuarial study of physical impairments, embracing 15 years of experience under 400 classes of impairments and the tabulation of many millions of entries, was recently begun by the Committee on Mortality of the Society of Actuaries. Life insurance companies will provide information and statistics.

The study will include practically all physical impairments except abnormal blood pressure and abnormal build. Results will be presented in a way that will relate deaths among policyholders with impairments, as recorded in applications for policies when purchased, to the expected death rates if the applicants had been normal risks.

The important groups to be investigated are: heart murmurs, rheumatic fever and arthritis, rapid or irregular pulse, history of tuberculosis, gall bladder disorders, gastric and duodenal ulcers, renal colic, albuminuria, glycosuria, goiter, blindness, deafness, neurasthenia, hysterectomy and similar operations, and family history of cardiovascular-renal disease and diabetes.

The findings are expected to permit conclusions to be drawn as to the mortality experienced in recent years for a wide variety of medical impairments. It is known that the general level of mortality has changed radically in the past 15 years. The last comprehensive study was made in 1929, based on experience under policies issued in the preceding 20 years.

"A high I.Q. doesn't necessarily mean that a child will be a superior student in school," says Mrs. Cleon J. Truitt, psychologist for the Chicago Public Schools for Crippled Children. "Other inherent traits such as drive, determination, emotional stability, social adaptability and physical proficiency also contribute to success.

"The term does not deserve all the notoriety it receives. It can be used synonymously with general rate of mental growth. In this respect it could be said that each of us has an I.Q., whether or not it has been measured, just as each of us has height and weight, even if these figures have never been determined."

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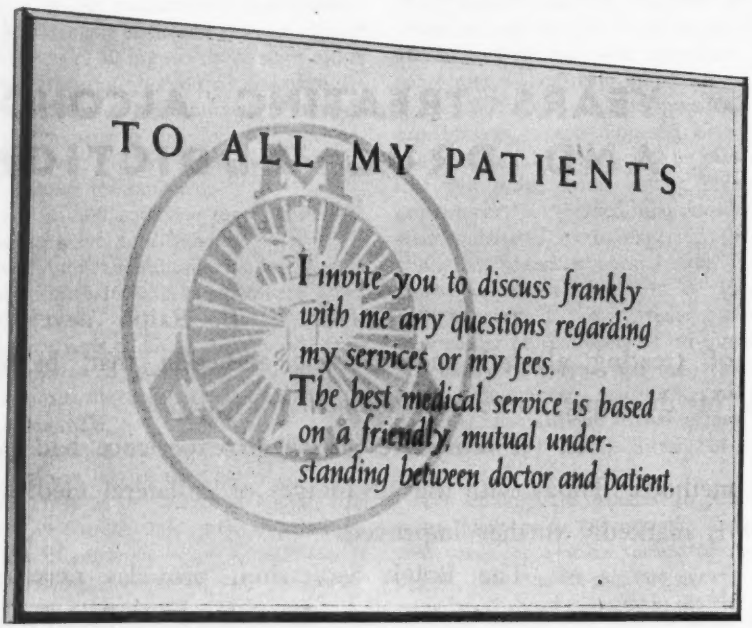
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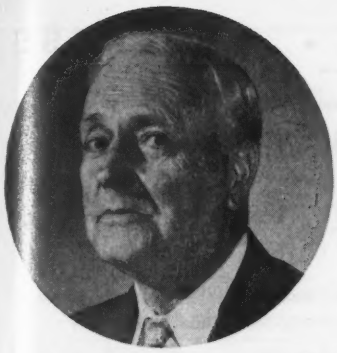

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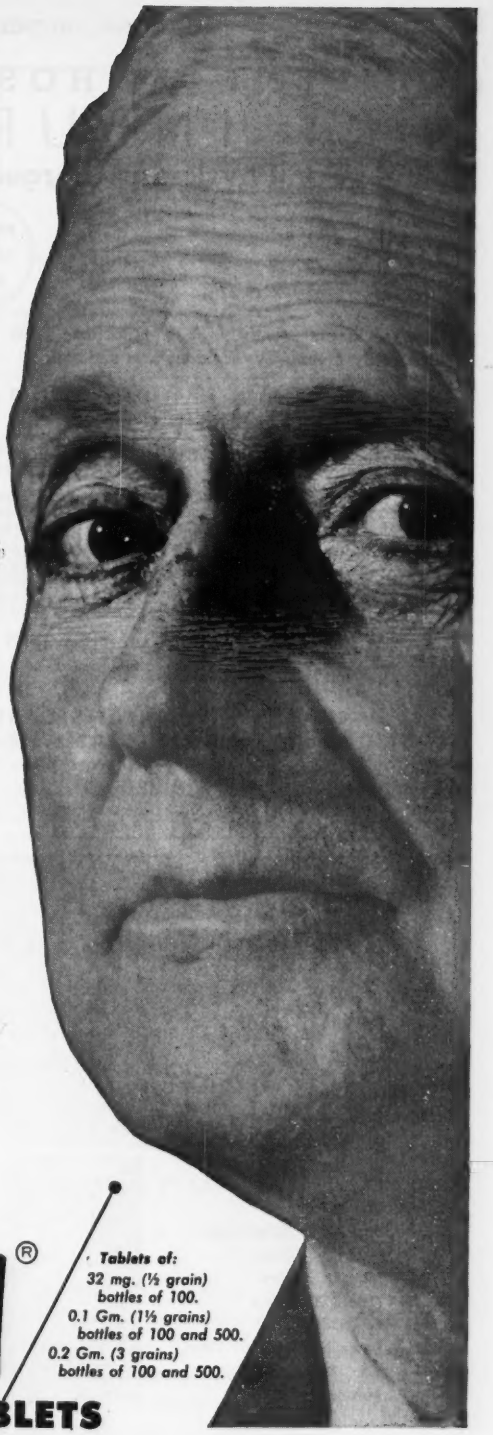

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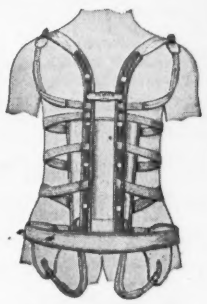

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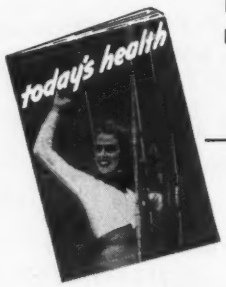

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Vahlquist, B. and Hackzell, G.: Acta Paediatrica *38*: 622 (1949).

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31	8 ♀ 23 ♂	3 yrs. (mean)	3 out of 31	2½ hrs.	severe in all cases

TABLE CONT'D

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*Katz, J., Friedman, A.P., and Gisolfi, A.: New York State J. Med. *50*: 2269 (Oct.) 1950.

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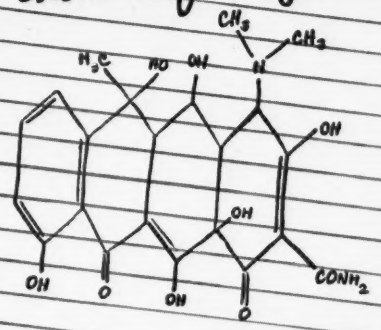
chemically unique



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